CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0094
NPDES NO. CA0077836

WASTE DISCHARGE REQUIREMENTS FOR OLIVEHURST PUBLIC UTILITY DISTRICT WASTEWATER TREATMENT PLANT YUBA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Olivehurst Public Utility District (hereafter Discharger) submitted a Report of Waste Discharge, dated 23 December 2003, and applied for a permit revision to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Olivehurst Public Utility District (PUD) Wastewater Treatment Plant. An NPDES permit was issued to the Discharger in January 2002 with an expiration date of January 2007. The Discharger has requested the permit be revised to accommodate significant residential growth within the community. The Discharger proposes to expand and significantly improve the wastewater treatment plant. Supplemental information to complete filing of the application was submitted on 5 February 2004.

2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the community of Olivehurst. The treatment plant is in Section 17, T14N, R4E, MDB&M, as shown on Attachment A, a part of this Order. Treated municipal wastewater is discharged to the Western Pacific Interceptor Drainage Canal, a water of the United States and a tributary to the Bear River at the point, latitude N 39º, 03', 55'' and longitude W 121º, 33', 08''. The Western Pacific Interceptor Drainage Canal enters the Bear River at the point, latitude N 38º, 58', 28'' and longitude W 121º, 32', 06''.

3. According to the information included in the Report of Waste Discharge, the population of Olivehurst will grow from 11,000 to approximately 45,000 within the next 10 to 15 years. The associated new residential housing developments are planned to be located between Olivehurst and the Bear River, west of Highway 70. The new developments include 12,384 housing units, commercial zones, and recreation land uses, including 178 acres of parks, and 197 acres of open spaces and drainage ways. The existing Plumas Lake Golf Course and Country Club is located within the development area. Presently, most of this area is agricultural land that is farmed for rice and pasture.

4. The Discharger is proposing to expand the capacity and upgrade the treatment process at its existing wastewater treatment plant (WWTP). The expansion and upgrade of the WWTP will be completed in two phases (Phase 1a and Phase 2), with a potential intermediate phase (Phase 1b). The proposed expansion of the WWTP would increase the average dry weather flow treatment

capacity from 1.8 mgd to 3.0 mgd in Phase 1. According to the Discharger, Phase 1 will enable the WWTP to treat flows from the existing connections and those that will be added in the first stages of the Plumas Lake development. Existing Waste Discharge Requirements, Order No. R5-2002-0001, required the wastewater treatment system be upgraded from secondary to tertiary treatment, or equivalent, and contained new effluent limitations for ammonia and nitrate with compliance due by 31 December 2006. Since the existing permit was adopted, the Discharger has completed an assessment of priority pollutants and compliance with national toxic rule (NTR), California toxic rule (CTR), and Basin Plan water quality objectives. The Discharger has designed the Phase 1a project as a tertiary system to comply with ammonia, nitrate and NTR, CTR and Basin Plan standards and objectives. The Discharger anticipates completion of construction of Phase 1a project by 30 October 2006 and operation by 31 December 2006. Following Phase 1a construction and start-up, constructed wetlands or other treatment measures will be added in Phase 1b if the Discharger determines that Phase 1a will not consistently satisfy new waste discharge requirements. Phase 2 will consist of further expansion necessary to serve future planned development, and an upgrade of the WWTP solids treatment process. The Discharger anticipates beginning the construction of Phase 2 in late 2007. Treatment capacity would be increased from 3.0 mgd to 5.1 mgd in Phase 2.

5. The existing treatment system consists of one primary clarifier, two aeration basins, two secondary clarifiers, and a chlorination/dechlorination system. Sludge is treated by aerobic digestion, dewatered by a pond and drying beds, and disposed off-site. The Report of Waste Discharge (ROWD) and additional information provided by the Discharger describes the wastewater discharge as follows:

Daily Peak Flow (Existing Design)	4.0	mgd
Daily Peak Flow (Phase I)	6.8	mgd
Daily Peak Flow (Phase II)	10.8	mgd
Design Flow (ADWF) (Existing Design)	1.8	mgd
Design Flow (ADWF) (Phase I)	3.0	mgd
Design Flow (ADWF) (Phase II)	5.1	mgd

Constituent	Maximum Daily	Average Daily	Unit
Temperature	77 (Summer)	71 (Summer)	°F
	66 (Winter)	60.8 (Winter)	°F
BOD[1]	28	11	mg/l
Total Suspended Solid	26	7.0	mg/l
Total Coliform Organisms	80	6.0	MPN /100 mL
Ammonia (as N)	2.67	0.69	mg/l
Chlorine Residual (Total)	0	0	mg/l
Dibromochloromethane	1.6	0.74	µg/l
Dichlorobromomethane	10	5.1	µg/l

Constituent	Maximum Daily	Average Daily	Unit
Tetrachloroethene	4.9	1.4	µg/l
Bis(2-ethylhexyl)phthalate	15	6.4	µg/l
Copper	26	7.1	µg/l
Aluminum	0.48	0.1	mg/l
Iron	0.22	0.07	mg/l
Manganese	0.36	0.058	mg/l
Tributyltin	0.11	0.019	µg/l
Methylene Blue Active Substances (MBAS)	0.15	0.04	mg/l
Nitrate (as N)	140	22.9	mg/l
Nitrite (as N)	0.46	0.074	mg/l
Sulfate	290	51.8	mg/l
Chloroform	43	22	µg/l

[1] 5-day, 20°C biochemical oxygen demand

6. The Discharger has proposed to expand and modify the treatment system during the Phase 1a project to include a new pump station, the addition of the influent pumping and screening capacity, a new grit removal system, two new oxidation ditches, a new secondary clarifier, equalization basin(s), tertiary filters, and a UV disinfection system. The Phase 1a project is being designed to comply with the limitations in this Order. If the system fails to comply with discharge limitations, the Discharger has proposed construction of a Phase 1b project, which would include wetlands. The Discharger has proposed a Phase 2 project, to provide additional capacity, which includes the addition of the influent pumping and screening capacity, the addition of grit removal capacity, the addition of oxidation ditch capacity, a new secondary clarifier, the addition of filtration and UV disinfection capacity, a new anaerobic digester, and a new solid handling building. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

7. The U.S. Environmental Protection Agency (EPA) and the Regional Board have classified this discharge as a major discharge.

8. The Regional Board adopted a *Water Quality Control Plan*, *Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.

RECEIVING WATER BENEFICAL USES

9. The Basin Plan at page II-2.00 states: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not specifically identify beneficial uses for the Western Pacific Interceptor Drainage Canal, but the Basin Plan does identify present and potential uses for the Bear River, to which the Western Pacific Interceptor Drainage Canal is tributary.

   The Basin Plan identifies the following beneficial uses for the Bear River: municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial power supply, water contact recreation, canoeing and rafting, non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, potential warm and cold fish migration habitat, potential warm and cold spawning habitat, and wildlife habitat. In addition, State Board Resolution No 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

   The Basin Plan on page II-1.00 states: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…" and with respect to disposal of wastewaters states that "...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses."

   The federal Clean Water Act, Section 101(a)(2), states: "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the Clean Water Act, create a rebuttable presumption that all waters be designated as fishable and swimable. Federal Regulations, 40 CFR Section 131.2 and 131.10, require that all waters of the State be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulations, 40 CFR Section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

   In reviewing whether the existing and/or potential uses of the Bear River apply to the Western Pacific Interceptor Drainage Canal**,** the Regional Board has considered the following facts:

a. *Municipal and Domestic Supply and Agricultural Irrigation*

The Regional Board is required to apply the beneficial uses of municipal and domestic supply to the Western Pacific Interceptor Drainage Canal based on State Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Board Resolution 89-056. In addition, the State Water Resources Control Board (SWRCB) has issued water
rights for irrigation uses, recreational uses, and fish and wildlife protection and/or enhancement to existing water users along the Western Pacific Interceptor Drainage Canal. Riparian Rights, for landowners along streams and rivers, may not be recorded with the SWRCB. Regional Board staff observed homes and farms along the Bear River, which may be use the water for domestic and irrigation purposes. Since the Western Pacific Interceptor Drainage Canal is an ephemeral stream, the Western Pacific Interceptor Drainage Canal likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in the Western Pacific Interceptor Drainage Canal.

b. *Water Contact and Non-contact Recreation and Esthetic Enjoyment*

The WWTP discharges to the Western Pacific Interceptor Drainage Canal, which is tributary to the Bear River and the Feather River. The Regional Board finds that there is ready public access to the Western Pacific Interceptor Drainage Canal, the Bear River, and the Feather River. Exclusion or restriction of public use is unrealistic. Regional Board staff observed evidence of contact recreational activities at the confluence of the Western Pacific Interceptor Drainage Canal and the Bear River; specifically, campfires, litter, foot trails, and numerous spent shotgun shells were observed along the banks. The Western Pacific Interceptor Drainage Canal runs through residential areas of the community of Olivehurst. Olivehurst is experiencing significant residential growth and contact recreational uses of the Western Pacific Interceptor Drainage Canal is likely to increase.

c. *Groundwater Recharge*

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since the Western Pacific Interceptor Drainage Canal is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

d. *Freshwater Replenishment*

When water is present in the Western Pacific Interceptor Drainage Canal, there is hydraulic continuity between the Western Pacific Interceptor Drainage Canal and the Bear River. During periods of hydraulic continuity, the Western Pacific Interceptor Drainage Canal adds to the water quantity and may impact the quality of water flowing down stream in the Bear River.

e. *Warm and Cold Freshwater Habitats (including preservation and enhancement of fish and invertebrates), Potential Warm and Cold Spawning Habitats, and Wildlife Habitat*

The Western Pacific Interceptor Drainage Canal is tributary to the Bear River. The Bear River flows to the Feather River. The California Department of Fish and Game (DFG) has recorded the presence of adult salmonids and juvenile non-natal rearing in the Western Pacific Interceptor Drainage Canal and anadromous fish species in Reeds Creek, a tributary to the Western Pacific Interceptor Drainage Canal. Regional Board staff observed the presence of fish at the Western Pacific Interceptor Drainage Canal and at the confluence of the Bear River and the Western Pacific Interceptor Drainage Canal. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/l.

The Basin Plan (Table II-1) designates the Bear River as being both a cold and warm freshwater habitat. Pursuant to the Basin Plan Tributary Rule, the cold and warm water habitat designation is applied to Hutchinson Creek. Upon review of the flow conditions, habitat values, and beneficial uses of the Western Pacific Interceptor Drainage Canal, and the facts described above, the Regional Board finds that the beneficial uses identified in the Basin Plan for the Bear River are applicable to the Western Pacific Interceptor Drainage Canal.

The Regional Board also finds that based on the available information and on the Discharger's application, that the Western Pacific Interceptor Drainage Canal, absent the discharge, is an ephemeral stream. The ephemeral nature of the Western Pacific Interceptor Drainage Canal means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the Western Pacific Interceptor Drainage Canal help support the aquatic life. Both conditions may exist within a short time span, where the Western Pacific Interceptor Drainage Canal would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Bear River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events.

NARRATIVE OBJECTIVES

10. The federal Clean Water Act (CWA) mandates the implementation of effluent limitations that are as stringent 40 C.F.R., § 122.44(d)(1)) NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality." Federal Regulations, 40 CFR, Section 122.44(d)(1)(vi), further provide that "[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

11. The Regional Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Board "will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Board must establish effluent limitations using one or more of three specified sources, including EPA's published water quality criteria, a proposed state criterion (i.e., water quality objective), or an explicit state policy interpreting its narrative water quality criteria (i.e., the Regional Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. 122.44(d)(1) (vi) (A), (B) or (C)). The Basin Plan contains a narrative objective requiring that: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life". The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The beneficial uses include municipal and domestic supply, agricultural irrigation supply, water contact and non-contact recreation and aquatic habitat and migration. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that; to protect all beneficial uses the Regional Board may apply limits more stringent than MCLs. When a reasonable potential exists for exceeding a narrative objective, Federal Regulations mandate numerical effluent limitations and the Basin Plan narrative criteria clearly establish a procedure for translating the narrative objectives into numerical effluent limitations.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

12. The United States Environmental Protection Agency (U.S. EPA) adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan or SIP) that contains guidance on implementation of the *National Toxics Rule* and the *California Toxic Rule*.

13. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for the following constituents:

    a) **Dibromochloromethane:**

    Discharger Self Monitoring Reports (DSMRs) and the Report of Waste Discharge (ROWD) indicate that the maximum detected effluent concentration of dibromochloromethane was 1.6 µg/l. U.S. EPA established human health CTR criteria of 0.41 µg/l (for waters from which both water and aquatic organisms are consumed) and 34 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected effluent concentration of dibromochloromethane exceeds the human health CTR criterion for waters from which both water and aquatic organisms are consumed. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of human health CTR criteria for dibromochloromethane. Effluent Limitations for dibromochloromethane are included in this Order and are based on human health CTR criteria. A time schedule has been included in this Order for compliance with the dibromochloromethane limitation.

    b) **Dichlorobromomethane:**

    DSMRs and the ROWD indicate that dichlorobromomethane was detected in the effluent at a maximum concentration of 10 µg/l. U.S. EPA human health CTR criteria for dichlorobromomethane are 0.56 µg/l (for waters from which both water and aquatic organisms are consumed) and 46 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected effluent concentration of dichlorobromomethane exceeds the human health CTR criterion for waters from which both water and aquatic organisms are consumed. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of the human health CTR criterion. Effluent Limitations for dichlorobromomethane are

included in this Order and are based on human health CTR criteria. A time schedule has been included in this Order for compliance with the dichlorobromomethane limitation.

c) **Tetrachloroethene:**

DSMRs and the ROWD indicate that tetrachloroethene was detected in each of 12 effluent samples. The maximum detected concentration of tetrachloroethene was reported at 4.9 µg/l.

U.S. EPA human health NTR criteria for tetrachloroethene are 0.8 µg/l (for waters from which both water and aquatic organisms are consumed) and 8.85 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of tetrachloroethene exceeds the human health NTR criterion for waters from which both water and aquatic organisms are consumed. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of the human health NTR criterion. Effluent Limitations for tetrachloroethene are included in this Order and are based on human health NTR criteria. A time schedule has been included in this Order for compliance with the tetrachloroethene limitation.

d) **Bis(2-ethylhexyl)phthalate:**

DSMRs and the ROWD indicate that bis(2-ethylhexyl)phthalate was detected in 2 of 4 effluent samples. Bis(2-ethylhexyl)phthalate was detected at a maximum effluent concentration of 15 µg/l.

U.S. EPA human health NTR criteria for bis(2-ethylhexyl)phthalate are 1.8 µg/l (for waters from which both water and aquatic organisms are consumed) and 5.9 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of bis(2-ethylhexyl)phthalate exceeds human health NTR criteria. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of human health NTR criteria for bis(2-ethylhexyl)phthalate. Effluent Limitations for bis(2-ethylhexyl)phthalate are included in this Order and are based on human health NTR criteria. A time schedule has been included in this Order for compliance with the bis(2-ethylhexyl)phthalate limitation.

e) **Copper:**

DSMRs and the ROWD indicate that copper was detected in each of the 12 effluent samples. The maximum detected effluent concentration of copper was reported at 26 µg/l. The CTR freshwater aquatic life hardness-dependent criteria for copper are presented in dissolved concentrations. U.S. EPA recommended conversion factors to translate dissolved concentrations to total concentrations. The conversion factor for copper in fresh water is 0.960 for both acute and chronic criteria.

Using the lowest measured hardness from the effluent of 48 mg/l, the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) are calculated at 5.0 µg/l and 7.0 µg/l, respectively. U.S. EPA human health CTR criterion for copper is 1,300 µg/l (for waters from which both water and aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of copper exceeds freshwater aquatic life CTR criteria. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of freshwater aquatic life CTR criteria for copper. Effluent Limitations for copper are included in this Order and are based on freshwater aquatic life CTR criteria. A time schedule has been included in this Order for compliance with the copper limitation.

f) **Organochlorine Pesticides:**

The Basin Plan includes a water quality objective for pesticides on page III-6.0, which states: "No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses" and that " Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer".

DSMRs and the ROWD indicate that alpha-hexachlorocyclohexane (alpha-BHC), dieldrin, gamma-hexachlorocyclohexane (lindane), 2,4-D, dalapon, and methoxychlor were detected in the effluent. Alpha-BHC was detected above the Method Detection Limit (MDL) and below the Reporting Limit (RL) (reported as "J Flag") at an effluent concentration of 0.0031 µg/l. The MDL and the RL for alpha-BHC were reported at 0.0029 µg/l and 0.024 µg/l, respectively. Dieldrin was detected at an estimated concentration (reported as "J Flag") of 0.0073 µg/l. The MDL and the RL for dieldrin were reported at 0.0067 µg/l and 0.048 µg/l, respectively. Gamma-BHC (Lindane) was detected at an estimated effluent concentration (reported as "J Flag") of 0.0075 µg/l. The MDL and the RL for Lindane were reported at 0.0029 µg/l and 0.024 µg/l, respectively. 2,4-D was detected at an estimated maximum effluent concentration of 1.2 µg/l (reported as "J Flag"). The MDL and the RL for 2,4-D were reported at 0.1µg/l and 10 µg/l, respectively. Dalapon was detected at a maximum effluent concentration of 8.3 µg/l. Methoxychlor was detected at an estimated effluent concentration (reported as "J Flag") of 0.081 µg/l. The MDL and the RL for methoxychlor were reported at 0.016 µg/l and 0.048 µg/l, respectively.

Human health CTR criteria for alpha-BHC, dieldrin, and gamma-BHC (Lindane) are 0.0039 µg/l, 0.00014 µg/l, and 0.019 µg/l, respectively (for waters from which both water and aquatic organisms are consumed) and 0.013 µg/l, 0.00014 µg/l, and 0.063 µg/l, respectively (for waters from which only aquatic organisms are consumed) as a 30-day average. The current Primary MCLs for 2,4-D and dalapon are 70 µg/l and 200 µg/l,

respectively. U.S. EPA and the Department of Health Service established a Primary MCL of 40 µg/l and 30 µg/l for methoxychlor, respectively. The Ambient Water Quality freshwater aquatic life criterion for methoxychlor is 0.03 µg/l (as a maximum concentration).

The Basin Plan objective is more restrictive than CTR water quality standards for organochlorine pesticides. The CTR states that CTR standards apply unless the State's criteria are more restrictive. The presence of alpha-BHC, dieldrin, gamma-BHC (Lindane), 2,4-D, dalapon, and methoxychlor in the effluent indicates that the discharge from the WWTP has a reasonable potential to cause or contribute to an exceedance of Basin Plan objectives for organochlorine pesticides. This Order includes an Effluent Limitation for organochlorine pesticides based on the Basin Plan objective.

g) **Aluminum:**

DSMRs and the ROWD indicate that aluminum was detected in 6 of 11 effluent samples. The maximum detected effluent concentration of aluminum was reported at 480 µg/l. U.S. EPA established Ambient Water Quality freshwater aquatic life continuous concentration and maximum concentration criteria of 87 µg/l as a four-day average and 750 µg/l as a one-hour average, respectively, for aluminum. Aluminum exists as aluminum silicate in suspended clay particles, which U.S. EPA acknowledges might be less toxic than other forms of aluminum. Correspondence with U.S.EPA indicates that the criterion is not intended to apply to aluminum silicate particles. Therefore, a monitoring method that excludes clay particles is likely to be more appropriate. The use of acid-soluble analysis for compliance with the aluminum criterion appears to satisfy U.S. EPA.

Using the methodology in the U.S. EPA's Technical Support Document (TSD) for Water Quality-Based Toxics Control, the projected Maximum Effluent Concentration (MEC) of aluminum is calculated at 3,298 µg/l. The projected MEC of aluminum exceeds Ambient Criteria. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause an exceedance of the Basin Plan narrative toxicity objective. This Order includes concentration-based Effluent Limitations for aluminum based on the Basin Plan narrative toxicity objective utilizing the EPA's recommended Ambient Criteria.

h) **Iron:**

DSMRs and the ROWD indicate that iron was detected in 7 of 11 effluent samples. The maximum detected effluent concentration of iron was reported at 220 µg/l. Using the TSD reasonable potential analysis, the projected MEC of iron is calculated at 1,170 µg/l. The current Secondary MCL for iron is 300 µg/l.

The projected MEC of iron exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for iron based on the Basin Plan chemical constituents objective at the Secondary MCL of 300 µg/l.

i) **Manganese:**

DSMRs and the ROWD indicate that manganese was detected in 9 of 11 effluent samples. The maximum detected effluent concentration of manganese was reported at 360 µg/l. U.S. EPA and the Department of Health Service established a Secondary MCL of 50 µg/l for manganese. Using the TSD reasonable potential analysis, the projected MEC of manganese in the effluent is calculated at 3,514 µg/l. The projected MEC of manganese exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for manganese based on the Basin Plan chemical constituents objective at the Secondary MCL of 50 µg/l.

j) **Tributyltin:**

DSMRs and the ROWD indicate that tributyltin was detected in 3 of 12 effluent samples. The maximum detected effluent concentration of tributyltin was reported at 0.114 µg/l. U.S. EPA established Ambient Water Quality freshwater aquatic life continuous concentration and maximum concentration criteria of 0.072 µg/l as a four-day average and 0.46 µg/l as an one-hour average, respectively, for tributyltin.

Using the TSD reasonable potential analysis, the projected MEC of tributyltin is calculated at 1.2 µg/l. The projected MEC of tributyltin exceeds Ambient Criteria. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause an exceedance of the Basin Plan narrative toxicity objective. This Order includes concentration-based Effluent Limitations for tributyltin based on the Basin Plan narrative toxicity objective utilizing the EPA's recommended Ambient Criteria.

k) **Methylene Blue Active Substances (MBAS):**

DSMRs and the ROWD indicate that MBAS was detected in 3 of 12 effluent samples. The maximum detected effluent concentration of MBAS was reported at 150 µg/l. Using the TSD reasonable potential analysis, the projected MEC for MBAS is calculated at 795 µg/l.

The current Secondary MCL for MBAS is 500 µg/l. The projected MEC of MBAS exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for MBAS based on the Basin Plan chemical constituents objective at the Secondary MCL of 500 µg/l.

l) **Nitrate (as N):**

Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification process to remove ammonia from the waste stream. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia or nitrate to the receiving stream. Recent toxicity studies have indicated that a possibility that nitrate is toxic to aquatic organisms.

DSMRs and the ROWD indicate that nitrate (as N) was detected at a maximum detected effluent concentration of 140 mg/l. Using the TSD reasonable potential analysis, the projected MEC of nitrate is calculated at 1,183 mg/l. The Basin Plan on page III-3.0, states: "Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses". U.S. EPA has developed a Primary MCL of 10,000 µg/l for nitrate (as N). An Effluent Limitation for nitrate is included in existing Waste Discharge Requirements, Order No. R5-2002-0001, in accordance with the Basin Plan chemical constituents objective. A time schedule for compliance with the nitrate Effluent Limitation is included in the Cease and Desist Order No. R5-2002-0002, with full compliance required by 1 January 2007.

The maximum detected effluent concentration of nitrate exceeds the monthly average Effluent Limitation contained in the existing permit. Therefore, nitrate has violated and presents a reasonable potential to cause or contribute to an exceedance of permit limitations. Monthly average concentration-based Effluent Limitation for nitrate as contained in the existing permit is continued in this Order.

m) **Nitrite (as N):**

DSMRs and the ROWD indicate that nitrite (as N) was detected in 1 of 12 effluent samples. The maximum detected effluent concentration of nitrite (as N) was reported at 460 µg/l. Using the TSD reasonable potential analysis, the projected MEC of nitrite is calculated at 1,288 µg/l.

U.S. EPA and California DHS developed a Primary MCL of 1,000 µg/l for nitrite (as N). The projected MEC of nitrite exceeds the Primary MCL. To protect the municipal and domestic beneficial use, this Order includes a concentration-based Effluent Limitation for nitrite based on the Basin Plan chemical constituent objective at the Primary MCL of

1,000 µg/l.

n) **Sulfate:**

DSMRs and the ROWD indicate that sulfate was detected in each of the 12 effluent samples. The maximum detected effluent concentration of sulfate was reported at 290 mg/l. Using the TSD reasonable potential analysis, the projected MEC of sulfate is calculated at 2,407 mg/l. The current Primary and Secondary MCLs for sulfate are 500,000 µg/l and 250,000 µg/l, respectively.

The maximum detected effluent concentration of sulfate exceeds the Secondary MCL. To protect the municipal and domestic beneficial use, this Order includes a concentration-based Effluent Limitation of 250,000 µg/l for sulfate based on the Basin Plan chemical constituent objective at the Secondary MCL.

o) **Total Chlorine Residual:**

Chlorine is commonly used as a disinfection agent in the treatment of the wastewater. Proper disinfection ensures destruction of pathogens prior to discharge to the surface waters. The Olivehurst PUD uses chlorine for disinfection of wastewater at the treatment plant. Because chlorine poses a threat to human health and is especially harmful to organisms living in water, a dechlorination process is necessary for the removal of chlorine. For dechlorination, the Discharger uses sulfur dioxide, which combines with chlorine, to render it relatively unreactive and thus removes it from the waste stream. Inadequate dechlorination may result in the discharge of chlorine to the receiving stream and cause toxicity to aquatic life.

U.S. EPA has developed Ambient Water Quality Criteria for the protection of freshwater aquatic life. The recommended maximum one-hour average and four-day average concentrations for chlorine are 0.02 mg/l and 0.01 mg/l, respectively. Effluent Limitations for chlorine are included in this Order and are based on the Basin Plan narrative toxicity objective utilizing the Ambient Criteria.

p) **Total Trihalomethanes and Chloroform:**

DSMRs and the ROWD indicate that chloroform was detected in each of the twelve effluent samples at a maximum concentration of 43 µg/l. Chloroform is included in the CTR. However, no CTR criteria for chloroform have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to chloroform to determine whether chloroform causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. Using the TSD reasonable potential analysis, the projected MEC of chloroform is calculated at 119 µg/l.

The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and 2 liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 ug/L (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the DHS to set *de minimus* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S.EPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. Since no drinking water intakes are likely to exist where the ingestion of water is equivalent to the level used in development of the cancer risk assessment downstream of the discharge from the Olivehurst PUD WWTP; therefore, setting a chloroform effluent limitation based on a cancer risk analysis is not appropriate. Although application of the cancer risk criteria is inappropriate, protection of the municipal water supply is necessary and appropriate. The Primary MCL for total trihalomethanes, the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane, is 80 µg/l.

The projected MEC of chloroform exceeds the Primary MCL. It indicates that the discharge from the WWTP does have a reasonable potential to cause an in-stream excursion above the water quality objective for municipal uses. Therefore, an Effluent Limitation for total trihalomethanes is included in this Order and is based on the Basin Plan objective for municipal use. If U.S. EPA or the State Board develops a water quality objective for chloroform and/or total trihalomethanes, this Order may be reopened and a new Effluent Limitation established.

14. As stated in the above Findings, the U.S. EPA adopted the NTR and the CTR, which contain water quality standards applicable to this discharge and the SIP contains guidance on implementation of the NTR and CTR. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must: be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year, and; be included in the Provisions. The interim limitations in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are

established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration has been established as the interim limitation. When there are less than ten sampling data points available, the *Technical Support Document for Water Quality Based Toxics Control* ((EPA/505/2-90-001)TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2
of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (TSD, Table 5-2). The Regional Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based Effluent Limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final Effluent Limitations, but in compliance with the interim Effluent Limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. For example, U.S. EPA states in the Ambient Water Quality Criteria for the Protection of Freshwater
Aquatic Life for copper, that it will take an unstressed system approximately three years to recover from a pollutant in which exposure to copper exceeds the recommended criterion. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the Effluent Limitation can be achieved.

15. Section 2.1 of the SIP provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish*
a compliance schedule in an NPDES permit." Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: …*"(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable."* This Order requires the Discharger to provide this information. The new water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper become

effective on **1 September 2004** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper become effective on **30 November 2007.**

16. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for an increase in the flow and total volume of wastewater, however because this Order requires tertiary treatment, or equivalent, be implemented, the total mass of pollutants discharged actually decreases over the life of the permit. The increase in the discharge allows wastewater utility service necessary to accommodate housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

17. The Clean Water Act, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; "The numerical and narrative water quality
objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses." This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Pesticides, Radioactivity, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity, and Turbidity.

18. The designated beneficial uses of the Bear River, downstream of the discharge from the WWTP, include water contact recreation and agricultural irrigation. The Basin Plan definition for water contact recreation includes "uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably potential. These uses include, but not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing or use of natural hot springs". To protect these beneficial uses, the Regional Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. Filtration also reduces solids in the effluent and allows for more effective disinfection. The wastewater must be treated to tertiary standards (filtered) to protect contact recreational and food crop irrigation uses.

The California Department of Health Services (DHS) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 ml as a 7-day median. Title 22 is not directly applicable to surface waters; however, the Regional Board finds that it is appropriate to apply DHS's reclamation criteria because the Western Pacific Interceptor Drainage Canal is used for irrigation of agricultural land. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be
used for the irrigation of food crops. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS.

In addition to coliform testing, a turbidity effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is also capable of reliably meeting a turbidity limitation of two nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations.

The application of tertiary treatment processes results in the ability to achieve lower levels for BOD and TSS than the secondary standards currently prescribed; the 30-day average BOD and TSS limitations have been revised to 10 mg/l, which is technically based on the capability of a tertiary system.

The establishment of tertiary limitations has not been previously required for this discharge; therefore, a schedule for compliance with the tertiary treatment requirement is included as a Provision in this Order.

19. This Order contains Effluent Limitations and requires a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. In accordance with California Water Code, Section 13241, the Regional Board has considered the following:

    As stated in the above Findings, the past, present, and probable future beneficial uses of the receiving stream include domestic and municipal supply, agricultural irrigation, agricultural stock watering, industry power supply, water contact recreation including canoeing and rafting recreation, non-contact water recreation including aesthetic enjoyment, warm freshwater habitat, cold freshwater habitat, potential warm fish migration habitat, potential cold fish migration habitat, potential warm spawning habitat, potential cold spawning habitat, and wildlife habitat.

The environmental characteristics of the hydrographic unit including the quality of water available will be improved by the requirement to provide tertiary treatment for this wastewater discharge. Tertiary treatment will allow for the continued reuse of the undiluted wastewater for food crop irrigation and contact recreation activities which is otherwise unsafe according to recommendations from the DHS. Fishable, swimable, and agricultural irrigation water quality conditions can be reasonably achieved through the coordinated control of all factors, which affect water quality in the area.

The economic impact of requiring an increased level of treatment has been considered. State Board staff has estimated that the increased level of treatment will cost approximately $3.1 million (for the design flow of 3.0 mgd) and $5.2 (for the design flow of 5.1 mgd). The current monthly domestic sewer user fee is $15.50. The California average monthly domestic sewer user fee is $20.46. The loss of beneficial uses within downstream waters, without the tertiary treatment requirement, include prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes, would have a detrimental economic impact. In addition to pathogen removal to protect irrigation and recreation, tertiary treatment may also aid in meeting discharge limitations for other pollutants, such as heavy metals, reducing the need for advanced treatment.

The need to develop housing in this area will be facilitated by improved water quality, which protects the contact recreation and irrigation uses of the receiving water. DHS recommends that, in order to protect the public health, undiluted wastewater effluent must be treated to a tertiary level, for contact recreational and food crop irrigation uses. Without tertiary treatment, the downstream waters could not be safely utilized for contact recreation or the irrigation of food crops.

It is the Regional Board's policy, (Basin Plan, page IV-15.00, Policy 2) to encourage the reuse of wastewater. The Regional Board requires Dischargers to evaluate how reuse or land disposal of wastewater can be optimized. The need to develop and use recycled water is facilitated by providing a tertiary level of wastewater treatment, which will allow for a greater variety of uses in accordance with California Code of Regulations, Title 22.

GROUNDWATER

20. The Discharger contains all wastewater flows in systems that do not utilize land disposal. All wastewater is contained in treatment units. The wastewater collection and treatment systems do not threaten groundwater quality. The discharge shall not degrade groundwater quality.

GENERAL

21. This Order prohibits bypass from any portion of the treatment facility as required in *Standard Provisions and Reporting Requirements, For Waste Discharge Requirements, 1 March 1991, General Provisions, No. 13.* Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of

the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Board's prohibition of bypasses, the State Water Resources Control Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation. In the case of
United States v. City of Toledo, Ohio (63 F. Supp 2d 834, N.D. Ohio 1999) the Federal Court ruled that "any bypass which occurs because of inadequate plant capacity is unauthorized…to the extent that there are 'feasible alternatives', including the construction or installation of additional treatment capacity".

The Federal Clean Water Act, Section 301, requires that not later than 1 July 1977, publicly owned wastewater treatment works meet effluent limitations based on secondary treatment or any more stringent limitation necessary to meet water quality standards. Federal Regulations, 40 CFR, Part 133, establish the minimum level of effluent quality attainable by secondary treatment for BOD, TSS, and pH. Tertiary treatment requirements for BOD and TSS are based on the technical capability of the process. Biochemical oxygen demand (BOD) is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The solids, total suspended (TSS) and settleable (SS), content is also an important characteristic of wastewater. The secondary and tertiary treatment standards for BOD and TSS are indicators of the effectiveness of the treatment processes.

The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Secondary treatment has been shown to be effective for pathogen removal. For additional pathogen reduction, tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream.

A wet weather influent wastestream may contain significantly diluted levels of BOD and TSS. A bypassed diluted wastestream may have BOD and TSS levels that meet the secondary or tertiary objectives, either alone or when blended with treated wastewater. However, the bypassed wastestream would not have been treated to reduce pathogens or other individual pollutants. The indicator parameters of BOD and TSS cannot be diluted to a level that may indicate the adequate treatment has occurred as an alternative to providing appropriate treatment.

22. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

23. The discharge is presently governed by Waste Discharge Requirements Order No. R5-2002-0001 adopted by the Regional Board on 25 January 2002.

24. The Discharger has prepared a draft Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), and the State CEQA Guidelines. The Regional Board has considered the draft EIR and concurs there are no significant impacts on water quality. The EIR must be certified as final prior to allowing an increase in the average dry weather flow rate or expanding the wastewater treatment plant capacity. If the final EIR identifies any additional water quality concerns, this Order may be reopened and modified.

25. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;

    b. The waste discharge requirements are consistent with water quality objectives; and

    c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

26. The Basin Plan states that "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.*" The Basin Plan requires that "*as a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay.*" Order No. R5-2004-0094 requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective. The Basin Plan also states: "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed…*" Effluent limitations for acute toxicity are included in the Order.

27. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;
    b. The waste discharge requirements are consistent with water quality objectives; and
    c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

28. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities.

    Sanitary sewer overflows consist of varying mixtures of domestic sewage, industrial wastewater, and commercial wastewater. This mixture depends on the pattern of land use in the sewage collection system tributary to the overflow. The chief causes of sanitary sewer overflows include lack of maintenance, blockages due to grease, roots, and debris, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm water or groundwater inflow/infiltration, insufficient capacity, and contractor caused blockages.

    Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause exceedance of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.

    The Discharger is responsible for all necessary steps to adequately maintain and operate its sanitary sewer collection system.

29. Section 13267 of the California Water Code states, in part, "*(a) A regional board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region"* and *"(b) (1) In conducting an investigation…, the regional board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires.*" The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267. The monitoring and reporting program to monitor groundwater required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges waste subject to this Order.

30. The Regional Board has considered the information in the attached Information Sheet in developing the Findings of this Order. The attached Information Sheet and Attachments A, B, C, and D are part of this Order.

31. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

32. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

33. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Order No. R5-2002-0001 is rescind and the Olivehurst Public Utility District, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in Findings is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)"].

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations:

1. Effluent from the wastewater treatment plant shall not exceed the following limits (from adoption until **30 November 2007**):

Constituents	Units	Monthly Average	Weekly Average	Monthly Median	Daily Maximum	Daily Average
BOD[1]	mg/l	30[2]	45[2]	---	---	60[2]
	lbs/day[3]	451	676	---	---	901
Total Suspended Solids	mg/l	30[2]	45[2]	---	---	60[2]
	lbs/day[3]	451	676	---	---	901
Total Coliform Organisms	MPN/100ml	---	---	23	240	---
Settleable Solids	ml/l	0.1	---	---	0.2	---
Aluminum[2,6]	µg/l	58	---	---	---	161
	lbs/day[3]	0.87	---	---	---	2.4
Iron[2]	µg/l	300	---	---	---	---
	lbs/day[3]	4.5	---	---	---	---
Manganese[2]	µg/l	50	---	---	---	---
	lbs/day[3]	0.75	---	---	---	---
Tributyltin	µg/l	0.043	---	---	0.13	---
	lbs/day[3]	0.00065	---	---	0.002	---
Methylene Blue Active Substances (MBAS)	µg/l	500	---	---	---	---
	lbs/day[3]	7.5	---	---	---	---
Nitrate (as N)	µg/l	10,000	---	---	---	---
	lbs/day[3]	150	---	---	---	---
Nitrite (as N)	µg/l	1,000	---	---	---	---
	lbs/day[3]	15	---	---	---	---
Total Trihalomethanes[4]	µg/l	80	---	---	---	---
	lbs/day[3]	1.2	---	---	---	---
Sulfate	µg/l	250,000	---	---	---	---
	lbs/day[3]	3,755	---	---	---	---
Organochlorine Pesticides	µg/l	---	---	---	ND[5]	---

1 5-day, 20°C biochemical oxygen demand (BOD)

2 To be ascertained by a 24-hour composite

3 Based upon a design treatment capacity of 1.8 mgd

4 Total trihalomethanes is the sum of bromoform, bromodichloromethane, chloroform and dibromochloromethane.

5 ND (non-detectable), the non-detectable limitation applies to each individual pesticide at any detection level. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques that have the lowest possible detectable level for organochlorine pesticides with a maximum acceptable detection level of 0.05 µg/l.

6 Compliance can be demonstrated using either total, or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

Constituents	Units	Monthly Average	Four-day Average	One-hour Average
Total Chlorine Residual	mg/l	---	0.01	0.02
	lbs/day[1]	---	0.15	0.3
Ammonia	mg/l	Attachment B	---	Attachment C
	lbs/day[2]	Calculate	---	Calculate

[1] Based on a design treatment capacity of 1.8 mgd.
[2] The mass limit shall be calculated based on the concentration limitations (from Attachments) and the design flow of 1.8 mgd.

2. Effluent from the wastewater treatment plant shall not exceed the following interim priority pollutant limits (from adoption until **30 November 2007**):

Constituents	Unit	Daily Average
Dibromochloromethane[1]	µg/l	2.2
	lbs/day[2]	0.033
Dichlorobromomethane[1]	µg/l	15.1
	lbs/day[2]	0.23
Tetrachloroethene[1]	µg/l	6.2
	lbs/day[2]	0.093
Bis(2-ethylhexyl)phthalate[1]	µg/l	46.7
	lbs/day[2]	0.7
Copper[1] (Total Recoverable)	µg/l	27.6
	lbs/day[2]	0.41

[1] See Provision No. 5 of this Order for the effective compliance date for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper.
[2] Based upon a design treatment capacity of 1.8 mgd.

3. Effluent shall not exceed the following limits (from **30 November 2007** forward):

Constituents	Units	Monthly Average	Weekly Average	7-day Median	Daily Average	Daily Maximum	Instantaneous Maximum
BOD[1]	mg/l	10[2]	15[2]	---	20[2]	---	---
	lbs/day	150[3]	225[3]	---	300[3]	---	---
		250[4]	376[4]	---	501[4]	---	---
		426[8]	638[8]	---	851[8]	---	---
Total Suspended Solids	mg/l	10[2]	15[2]	---	20[2]	---	---
	lbs/day	150[3]	225[3]	---	300[3]	---	---
		250[4]	376[4]	---	501[4]	---	---
		426[8]	638[8]	---	851[8]	---	---

Constituents	Units	Monthly Average	Weekly Average	7-day Median	Daily Average	Daily Maximum	Instantaneous Maximum
Total Coliform Organisms	MPN/100ml	---	---	2.2	---	---	23
Turbidity	NTU	---	---	---	2.0	5.0[5]	---
Dibromochloromethane	µg/l	0.41	---	---	---	0.82	---
	lbs/day	0.0062[3]	---	---	---	0.012[3]	---
		0.01[4]	---	---	---	0.021[4]	---
		0.017[8]	---	---	---	0.035[8]	---
Dichlorobromomethane	µg/l	0.56	---	---	---	1.1	---
	lbs/day	0.0084[3]	---	---	---	0.017[3]	---
		0.014[4]	---	---	---	0.028[4]	---
		0.024[8]	---	---	---	0.047[8]	---
Tetrachloroethene	µg/l	0.8	---	---	---	2.0	---
	lbs/day	0.012[3]	---	---	---	0.03[3]	---
		0.02[4]	---	---	---	0.05[4]	---
		0.034[8]	---	---	---	0.085[8]	---
Bis(2-ethylhexyl)phthalate	µg/l	1.8	---	---	---	3.6	---
	lbs/day	0.027[3]	---	---	---	0.054[3]	---
		0.045[4]	---	---	---	0.09[4]	---
		0.077[8]	---	---	---	0.15[8]	---
Copper[2]	µg/l	Attachment D	---	---	Attachment D	---	---
	lbs/day[6]	Calculate	---	---	Calculate	---	---
Aluminum[2,10]	µg/l	58	---	---	161	---	---
	lbs/day	0.87[3]	---	---	2.4[3]	---	---
		1.5[4]	---	---	4.0[4]	---	---
		2.5[8]	---	---	6.9[8]	---	---
Iron[2]	µg/l	300	---	---	---	---	---
	lbs/day	4.5[3]	---	---	---	---	---
		7.5[4]	---	---	---	---	---
		12.8[8]	---	---	---	---	---
Manganese[2]	µg/l	50	---	---	---	---	---
	lbs/day	0.75[3]	---	---	---	---	---
		1.3[4]	---	---	---	---	---
		2.1[8]	---	---	---	---	---
Tributyltin	µg/l	0.043	---	---	---	0.13	---
	lbs/day	0.00065[3]	---	---	---	0.002[3]	---
		0.0011[4]	---	---	---	0.0033[4]	---
		0.0018[8]	---	---	---	0.0055[8]	---
Methylene Blue Active Substances (MBAS)	µg/l	500	---	---	---	---	---
	lbs/day	7.5[3]	---	---	---	---	---
		12.5[4]	---	---	---	---	---
		21.3[8]	---	---	---	---	---

Constituents	Units	Monthly Average	Weekly Average	7-day Median	Daily Average	Daily Maximum	Instantaneous Maximum
Nitrate (as N)	µg/l	10,000	---	---	---	---	---
	lbs/day	150[3]	---	---	---	---	---
		250[4]	---	---	---	---	---
		426[8]	---	---	---	---	---
Nitrite (as N)	µg/l	1,000	---	---	---	---	---
	lbs/day	15[3]	---	---	---	---	---
		25[4]	---	---	---	---	---
		42.6[8]	---	---	---	---	---
Sulfate	µg/l	250,000	---	---	---	---	---
	lbs/day	3,755[3]	---	---	---	---	---
		6,259[4]	---	---	---	---	---
		10,640[8]	---	---	---	---	---
Organochlorine Pesticides	µg/l	---	---	---	---	ND[7]	---
Total Trihalomethanes[9]	µg/l	80	---	---	---	---	---
	lbs/day	1.2[3]	---	---	---	---	---
		2.0[4]	---	---	---	---	---
		3.4[8]	---	---	---	---	---

[1] 5-day, 20°C biochemical oxygen demand (BOD)

[2] To be ascertained by a 24-hour composite

[3] Based upon a design treatment capacity of 1.8 mgd

[4] Based upon a design treatment capacity of 3.0 mgd. Expansions of the wastewater treatment system allowing an increase in the average dry weather flow rate to 3.0 mgd (Phase 1a) and 5.1 mgd (Phase 2) will be allowed upon receipt of certification of expansion of the treatment system. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

[5] The turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period. At no time shall the turbidity exceed 10 NTU.

[6] The mass limit shall be calculated based on the concentration limitations (from Attachments) and the design flows.

[7] ND (non-detectable), the non-detectable limitation applies to each individual pesticide at any detection level. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques that have the lowest possible detectable level for organochlorine pesticides with a maximum acceptable detection level of 0.05 µg/l.

[8] Based upon a design treatment capacity of 5.1 mgd. Expansions of the wastewater treatment system allowing an increase in the average dry weather flow rate to 3.0 mgd (Phase 1a) and 5.1 mgd (Phase 2) will be allowed upon receipt of certification of expansion of the treatment system. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

[9] Total trihalomethanes is the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane.

[10] Compliance can be demonstrated using either total, or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

Constituents	Units	Monthly Average	Four-day Average	One-hour Average
Ammonia	mg/l	Attachment B	---	Attachment C
	lbs/day[1]	Calculate	---	Calculate
Total Chlorine Residual	mg/l	---	0.01	0.02
	lbs/day	---	0.15[2]	0.3[2]
		---	0.25[3]	0.5[3]
		---	0.43[4]	0.85[4]

[1] The mass limit shall be calculated based on the concentration limitations (from Attachments) and the design flows.

[2] Based upon a design treatment capacity of 1.8 mgd.

[3] Based upon a design treatment capacity of 3.0 mgd. Expansions of the wastewater treatment system allowing an increase in the average dry weather flow rate to 3.0 mgd (Phase 1a) and 5.1 mgd (Phase 2) will be allowed upon receipt of certification of expansion of the treatment system. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

[4] Based upon a design treatment capacity of 5.1 mgd. Expansions of the wastewater treatment system allowing an increase in the average dry weather flow rate to 3.0 mgd (Phase 1a) and 5.1 mgd (Phase 2) will be allowed upon receipt of certification of expansion of the treatment system. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

2. Wastewater shall be oxidized, coagulated and filtered, or equivalent treatment provided after **30 November 2007.**

3. The arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

4. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

5. The average dry weather effluent flow shall not exceed 1.8 million gallons. Expansions of the wastewater treatment system allowing an increase in the average dry weather flow rate to 3.0 mgd (Phase 1a) and 5.1 mgd (Phase 2) will be allowed upon receipt of certification of expansion of the treatment system. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

6. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   Minimum for any one bioassay - - - - - - - - - 70%
   Median for any three or more consecutive bioassays - - - - 90%

C. Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.

3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

   If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

4. The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

5. By **1 December 2004**, the Discharger shall submit a sludge disposal plan describing the annual volume of sludge generated by the plant and specifying the disposal practices.

D. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/l. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Esthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.

    c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

7. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average pH to change by more than 0.5 units.

8. The ambient temperature to increase more than 5°F.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

11. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

12. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

13. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

14. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

15. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of total samples to exceed 400 MPN/100 ml.

E. Groundwater Limitations:

1. The discharge from the WWTP shall not cause the underlying groundwater to be degraded.

F. Wetlands Limitations:

1. Toxic pollutants shall not be present in the water column, sediments, or biota in concentrations that produce detrimental response in human, plant, animal or aquatic life; or that bioaccumulate in concentration that are harmful to human health or aquatic resources. The discharge into the wetlands shall not cause aquatic communities and populations, including vertebrate, invertebrate and plant species, to be degraded as determined by acute or chronic toxicity analysis, wetlands monitoring or technical reports required by the Executive Officer.

2. The wetlands must be managed so as not to create vector problems and to minimize the occurrence of avian botulism and other infectious diseases. The local mosquito abatement district or Yuba County Environmental Health Department shall be consulted annually to determine if changes need to be made in procedures in managing the wetlands for vector control.

G. Provisions:

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

3. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives. The constituents are specifically listed in a technical report requirement issued by the Executive Officer on 10 September 2001 and include NTR, CTR, and additional constituents that could exceed Basin Plan numeric or narrative water quality objectives. The Discharger shall comply with the following time schedule in conducting a study of the potential effect(s) of these constituents in surface waters:

Task	Compliance Date
Submit Study Report for Dioxins	**1 November 2004**

This Order is intended to be consistent with the requirements of the 10 September 2001 technical report. The technical report requirements shall take precedence in resolving any conflicts. The Discharger shall submit to the Regional Board on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance
with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

On or before each compliance date, the Discharger shall submit to the Regional Board the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule. If, after review of the study results, it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be reopened and effluent limitations added for the subject constituents.

4. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation

included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water

Resources Control Board, this Order may be reopened and a limitation based on that objective included.

5. This Order contains Effluent Limitations based on water quality criteria contained in the CTR for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper. By **1 September 2004** the Discharger shall complete and submit a compliance schedule justification for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper. The compliance schedule justification shall include all items specified by the SIP Section 2.1, Paragraph 3 (items (a) through (d)). Implementation of the new water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper become effective on **1 September 2004** if a compliance schedule justification meeting the requirements of Section 2.1 of the SIP is not completed and submitted by the Discharger. Otherwise the new final water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper required by this Order shall become effective on **30 November 2007.** As this schedule is greater than one year, the Discharger shall submit semi-annual progress reports on **15 June** and **15 December** each year until the Discharger achieves compliance with the final water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, tetrachloroethene, bis(2-ethylhexyl)phthalate, and copper.

6. The Discharger shall comply with the following time schedule to assure compliance with tertiary treatment, or equivalent, requirements Effluent Limitations contained in C.3 of this Order:

Task	Compliance Date	Report of Compliance Due
Submit Annual Status Report		**1 February, annually**
Submit Workplan/Time Schedule		**1 November 2004**
Full Compliance	**30 November 2007**	

The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

7. The interim limitations in this Order are based on the current treatment plant performance and have been established at the maximum observed concentration. Interim limitations have been established since compliance with NTR- and CTR-based Effluent Limitations cannot be achieved by the existing discharge. The interim Effluent Limitations, C.2,

establish enforceable mass and concentration ceilings until compliance with the final Effluent Limitations, C.3, can be achieved, which is required by **30 November 2007**.

8. The Discharger shall use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment.

9. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

10. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

11. The Discharger shall comply with Monitoring and Reporting Program No. R5-2004-0094, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

    When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

12. This Order expires on **1 July 2009** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

13. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

    a. Wastes which create a fire or explosion hazard in the treatment works;

    b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

    c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;

f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and

h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.

14. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

    a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

    b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

15. Sanitary Sewer System Operation, Maintenance and Overflow Prevention. The Discharger shall maintain all portions of the wastewater collection system to assure compliance with this Order. Collection system overflows and/or discharges are prohibited by this Order. All violations of this Order must be reported as specified in Standard Provisions and the public shall be notified, in coordination with the Health Department, in areas that have been contaminated with sewage. All parties with a reasonable potential for exposure to a sewage overflow event shall be notified.

16. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).

17. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding

owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 9 July 2004.

_____
THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2004-0094

NPDES NO. CA0077836

FOR
OLIVEHURST PUBLIC UTILITY DISTRICT
WASTEWATER TREATMENT PLANT
YUBA COUNTY

This Monitoring and Reporting Program is issued pursuant to California Water Code Sections 13383 and 13267. The Discharger shall not implement any changes to this Monitoring and Reporting Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program. Specific sample station locations shall be established under direction of the Regional Board's staff, and a description of the stations shall be attached to this Order.

Section 13267 of the California Water Code states, in part, "*(a) A regional board, in establishing…waste discharge requirements…may investigate the quality of any waters of the state within its region"* and *"(b)(1) In conducting an investigation…, the regional board may require that nay person who… discharges… waste… that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires."* This Monitoring and Reporting Program to monitor groundwater required by Order No. R5-2004-0094 are necessary to assure compliance with Order No. R5-2004-0094. The Discharger operates the facility that discharges waste subject to Order No. R5-2004-0094.

INFLUENT MONITORING

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent for the period sampled. Influent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
20°C BOD_5	mg/l, lbs/day	24-hr. Composite[1]	Weekly
Total Suspended Solids	mg/l, lbs/day	24-hr. Composite[1]	Weekly
Flow	mgd	Meter	Continuous

[1] The BOD and TSS samples shall be flow proportional composite samples.

EFFLUENT MONITORING

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the volume and quality of the discharge. Samples collected from the outlet structure of ponds will be considered adequately composited. Time of collection of samples shall be recorded. Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
20°C BOD_5	mg/l, lbs/day	24-hr. Composite[1]	Twice weekly[2]
Total Suspended Solids (TSS)	mg/l, lbs/day	24-hr. Composite[1]	Twice weekly[2]
Settleable Solids	ml/l	24-hr. Composite[1]	Twice weekly[2]
Total Dissolved Solids (TDS)	mg/l, lbs/day	24-hr. Composite[1]	Quarterly[3]
Electrical Conductivity @25°C	µmhos/cm	Grab	Daily
pH	Number	Meter	Daily
Acute Toxicity[4,5]	% Survival	Grab	Quarterly[6]
Total Coliform Organisms	MPN/l00 ml	Grab	Twice weekly[2]
Total Chlorine Residual	mg/l, lbs/day	Meter	Continuous
Flow	mgd	Meter	Continuous
Temperature	°F	Grab	Daily
Ammonia[7,8,9]	mg/l, lbs/day	Grab	Weekly[10]
Turbidity	NTU	Meter	Continuous
Dibromochloromethane	µg/l, lbs/day	Grab	Monthly
Dichlorobromomethane	µg/l, lbs/day	Grab	Monthly
Tetrachloroethene	µg/l, lbs/day	Grab	Monthly
Bis(2-ethylhexyl)phthalate	µg/l, lbs/day	Grab	Monthly
Copper	µg/l, lbs/day	24-hr. Composite	Monthly
Aluminum[14]	µg/l, lbs/day	24-hr. Composite	Monthly
Iron	µg/l, lbs/day	24-hr. Composite	Monthly
Manganese	µg/l, lbs/day	24-hr. Composite	Monthly
Tributyltin	µg/l, lbs/day	Grab	Monthly
Methylene Blue Active Substances (MBAS)	µg/l, lbs/day	Grab	Monthly
Nitrate (as N)	µg/l, lbs/day	Grab	Monthly
Nitrite (as N)	µg/l, lbs/day	Grab	Monthly

Constituents	Units	Type of Sample	Sampling Frequency
Total Trihalomethanes[11]	µg/l, lbs/day	Grab	Monthly
Sulfate	mg/l, lbs/day	Grab	Monthly
Organochlorine Pesticides	µg/l, lbs/day	Grab	Monthly
Priority Pollutants[12,13]	mg/l, lbs/day	Grab	Annually
Hardness	mg/l as $CaCO_3$	Grab	Quarterly

1 The BOD and TSS samples shall be flow proportional composite samples.
2 BOD, TSS, settleable solids, and total coliform organisms shall be monitored three times weekly after the tertiary treatment plant is complete.
3 Total dissolved solids shall be monitored monthly after the tertiary treatment plant is complete.
4 The acute bioassays samples shall be analyzed using EPA/600/4-90/027F, Fourth Edition, or later amendment with Regional Board staff approval. Temperature and pH shall be recorded at the time of bioassay sample collection. Test species shall be fathead minnows (Pimephales promelas), with no pH adjustment unless approved by the Executive Officer.
5 Concurrent with ammonia sampling.
6 Acute toxicity test shall be conducted every other month after the tertiary treatment plant is complete.
7 Concurrent with biotoxicity monitoring.
8 Report as both total and un-ionized ammonia.
9 Temperature and pH shall be recorded at the time of ammonia sample collection.
10 Ammonia shall be monitored three times weekly after the tertiary treatment plant is complete.
11 Total trihalomethanes is the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane.
12 Priority Pollutants is defined as U.S.EPA priority toxic pollutants and consists of the constituents listed in the Attachment II of the "13267 letter", which was issued by the Executive Officer on 10 September 2001, in conformance with California Water Code, Section 13267.
13 Temperature, pH, and hardness data shall be collected at the same time and on the same date as the Priority Pollutant samples.
14 Compliance can be demonstrated using either total, or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by U.S. EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall include at least the following:

Station	Description
R-l	100 feet upstream from the point of discharge
R-2	500 feet downstream from the point of discharge

Constituents	Units	Station	Sampling Frequency[2]
Dissolved Oxygen	mg/l	R-l, R-2	Weekly
pH	Number	R-l, R-2	Weekly
Turbidity	NTU	R-l, R-2	Weekly
Temperature	°F (°C)	R-l, R-2	Weekly
Electrical Conductivity @25°C	µmhos/cm	R-1, R-2	Weekly
Total Coliform Organisms	MPN/100 ml	R-1, R-2	Monthly
Ammonia[1]	mg/l	R-1, R-2	Quarterly
Radionuclides	pCi/l[3]	R-1, R-2	Annually

[1] Temperature and pH shall be determined at the time of sample collection for the calculation of unionized ammonia.

[2] During periods of discharge when there is no flow at R-1, required receiving water monitoring shall be limited to dissolved oxygen monitoring at R-2.

[3] pCi/l= picocuries per liters

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-l and R-2. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA 600/4-91/002. Chronic toxicity samples shall be collected at the discharge of the wastewater treatment plant prior to its entering the Western Pacific Interceptor Drainage Canal. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of collection samples shall be recorded. Standard dilution water can be used if the receiving water source exhibits toxicity and is approved by the Executive Officer. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species:	*Fathead minnows (Pimephales promelas), Ceriodaphnia dubia, and Selenastrum capricornutum*
Frequency:	*One per quarter, four quarter per year*
Dilution Series:	*None- the test shall be conducted using 100% effluent*

SLUDGE MONITORING

A composite sample of sludge shall be collected annually in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the following metals:

Cadmium	Copper	Nickel	Molybdenum
Chromium	Lead	Zinc	Mercury
Selenium	Silver		

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

1. **Within 90 days of the effective date of this Order**, and **annually by 30 January** thereafter, the Discharger shall submit:

   a. Annual sludge production in dry tons and percent solids.

   b. A schematic diagram showing sludge handling facilities and a solids flow diagram.

   c. Depth of application and drying time for sludge drying beds.

d. A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual sludge production disposed by each method.

Within 90 days of the effective date of this Order, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). All sludge samples shall be a composite of a minimum of twelve (12) discrete samples taken at equal time intervals over 24 hours. Suggested methods for analysis of sludge are provided in EPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

Constituents	Units	Sampling Frequency
Electrical Conductivity[1] @ 25°C	µmhos/cm	Semi-annually
Total Dissolved Solids	mg/l	Semi-annually

[1] If the water supply is from more than one source, the EC shall be reported as a weighted average and include copies of supporting calculations.

WETLANDS MONITORING[1]

WETLANDS INFLUENT[3]/EFFLUENT MONITORING:

A monitoring station shall be established at each major inlet and outlet point for the measurement and collection of representative samples of the influent and effluent. The influent/effluent monitoring shall consist of the following:

Constituent	Units	Sample Type	Frequency[4]
Chronic Toxicity	----	Grab	Quarterly
Metals	µg/l	Grab	Quarterly
Ammonia[2]	mg/l	Grab	Monthly
pH	pH units	Grab	Monthly
Specific Conductivity	µmhos/cm	Grab	Monthly

Constituent	Units	Sample Type	Frequency[4]

Temperature	^{o}F or ^{o}C	Grab	Monthly
Hardness	mg/l	Grab	Quarterly

[1] Wetlands Monitoring shall only be required during times when the wastewater is routed to or stored in the wetlands.
[2] pH and temperature shall be determined at the time of sample collection for ammonia
[3] Influent sampling maybe sampled immediately after dechlorination
[4] At specified frequency. If not discharging effluent, no effluent monitoring is required.

REPORTING

Monitoring results shall be submitted to the Regional Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent, effluent, storage pond, golf course, etc.), the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Suspended Solids, should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the WWTP (Standard Provision A.5).

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

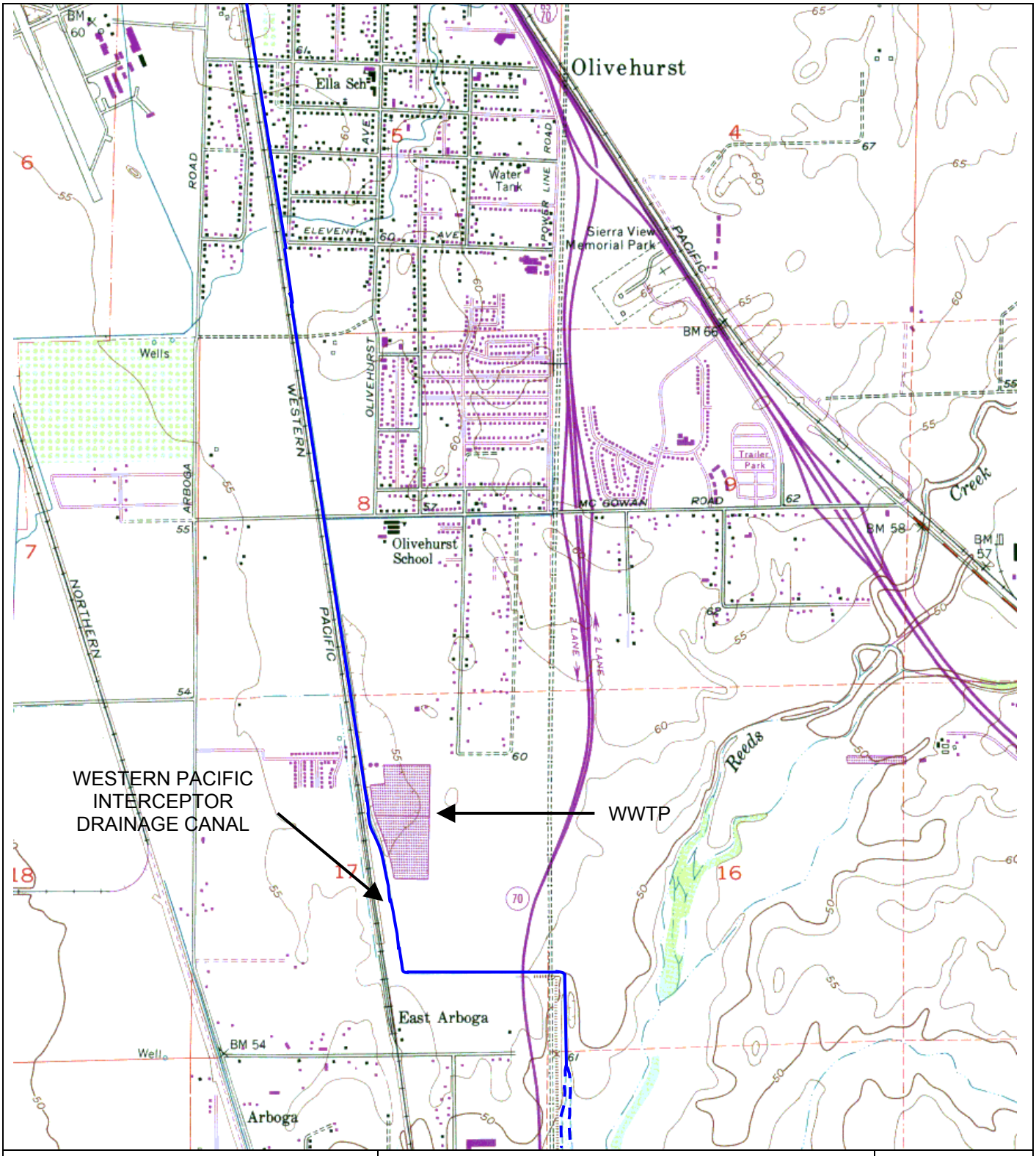
The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements. All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: THOMAS R. PINKOS, Executive Officer

9 July 2004
(Date)

TTP/ttp



Drawing Reference: OLIVEHURST U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE Photorevised 1952	**SITE LOCATION MAP** OLIVEHURST PUBLIC UTILITY DISTRICT WASTEWATER TREATMENT PLANT YUBA COUNTY	N W E S approx. scale 1 in. = 2,000 ft.

CONTINUOUS CONCENTRATION
30-DAY AVERAGE CONCENTRATIONS OF AMMONIA

Total Ammonia Concentration (mg N/l)										
Temperature, ºC (ºF)										
pH	**0** (32)	**14** (57)	**16** (61)	**18** (64)	**20** (68)	**22** (72)	**24** (75)	**26** (79)	**28** (82)	**30** (86)
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) x\ MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right)$$

where

CCC = criteria continuous concentration (mg N/l)
T = temperature (ºC)

ONE-HOUR AVERAGE CONCENTRATIONS OF AMMONIA

pH	Total Ammonia Concentrations (mg N/l)
6.5	32.6
6.6	31.3
6.7	29.8
6.8	28.0
6.9	26.2
7.0	24.1
7.1	21.9
7.2	19.7
7.3	17.5
7.4	15.3
7.5	13.3
7.6	11.4
7.7	9.64
7.8	8.11
7.9	6.77
8.0	5.62
8.1	4.64
8.2	3.83
8.3	3.15
8.4	2.59
8.5	2.14
8.6	1.77
8.7	1.47
8.8	1.23
8.9	1.04
9.0	0.885

where

$$CMC_{salmonids\ \ present} = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}} \right)$$

CMC = criteria maximum concentration (mg N/l)

Hardness-Dependent Effluent Limitation for Copper
(expressed as total recoverable metal)

Hardness (as $CaCO_3$)	Average Monthly, AMEL (µg/l)	Maximum Daily, MDEL (µg/l)	Hardness (as $CaCO_3$)	Average Monthly, AMEL (µg/l)	Maximum Daily, MDEL (µg/l)	Hardness (as $CaCO_3$)	Average Monthly, AMEL (µg/l)	Maximum Daily, MDEL (µg/l)
<25	Calculate	Calculate	100	5.9	14.0	260	14.0	34.4
25	1.6	3.8	110	6.4	15.3	270	15.3	35.7
30	1.9	4.5	120	7.0	16.6	280	16.6	36.9
35	2.2	5.2	130	7.5	17.9	290	17.9	38.2
40	2.5	5.9	140	8.1	19.2	300	19.2	39.4
45	2.8	6.6	150	8.6	20.5	310	20.5	40.6
50	3.1	7.3	160	9.1	21.8	320	21.8	41.9
55	3.3	8.0	170	9.7	23.1	330	23.1	43.1
60	3.6	8.7	180	10.2	24.4	340	24.4	44.3
65	3.9	9.3	190	10.8	25.6	350	25.6	45.6
70	4.2	10.0	200	11.3	26.9	360	26.9	46.8
75	4.5	10.7	210	11.8	28.2	370	28.2	48.0
80	4.8	11.3	220	12.3	29.4	380	29.4	49.2
85	5.0	12.0	230	12.9	30.7	390	30.7	50.5
90	5.3	12.7	240	13.4	31.9	400	31.9	51.7
95	5.6	13.3	250	13.9	33.2	>400	Calculate	Calculate

$$CCC = e^{\{0.8545[\ln(hardness)]-1.702\}}$$

$$CMC = e^{\{0.9422[\ln(hardness)]-1.700\}}$$

$$AMEL = 1.84\left[\min\left(0.226ECA_{acute}, 0.407ECA_{chronic}\right)\right]$$

$$MDEL = 4.42\left[\min\left(0.226ECA_{acute}, 0.407ECA_{chronic}\right)\right]$$

$$ECA_{acute} = CMC$$

$$ECA_{chronic} = CCC$$

where

CCC = criteria continuous concentration
CMC = criteria maximum concentration
ECA = effluent concentration allowance
AMEL = average monthly effluent limitation
MDEL = maximum daily effluent limitation

INFORMATION SHEET

ORDER NO. R5-2004-0094
NPDES NO. CA0077836
OLIVEHURST PUBLIC UTILITY DISTRICT
WASTEWATER TREATMENT PLANT
YUBA COUNTY

BACKGROUND INFORMATION

The Olivehurst Public Utility District (Discharger) owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service for the community of Olivehurst. The effluent waste stream from the wastewater treatment plant (WWTP) is discharged to the Western Pacific Interceptor Drainage Canal, which is tributary to the Bear River. The current design capacity of the WWTP is 1.8 million gallons per day (mgd).

The current treatment system consists of one primary clarifier, two aeration basins, two secondary clarifiers, and a chlorination/dechlorination system. Sludge is treated by aerobic digestion, dewatered by a pond and drying beds, and disposed off-site.

WASTEWATER TREATMENT PLANT UPGRADE AND EXPANSION

According to the information included in the Report of Waste Discharge, the population of Olivehurst will grow from 11,000 to approximately 45,000 within the next 10 to 15 years. The associated new residential housing developments are planned to be located between Olivehurst and the Bear River, west of Highway 70. The new developments include 12,384 housing units, commercial zones, and recreation land uses, including 178 acres of parks, and 197 acres of open spaces and drainage ways. The existing Plumas Lake Golf Course and Country Club is located within the development area. Presently, most of this area is agricultural land that is farmed for rice and pasture.

The Discharger is proposing to expand the capacity and upgrade the treatment process at its existing wastewater treatment plant (WWTP). The expansion and upgrade of the WWTP will be completed in two phases (Phase 1a and Phase 2), with a potential intermediate phase (Phase 1b). The proposed expansion of the WWTP would increase the average dry weather flow treatment capacity from 1.8 mgd to 3.0 mgd in Phase 1. According to the Discharger, Phase 1 will enable the WWTP to treat flows from the existing connections and those that will be added in the first stages of the Plumas Lake development. Existing Waste Discharge Requirements, Order No. R5-2002-0001, required the wastewater treatment system be upgraded from secondary to tertiary treatment, or equivalent, and contained new effluent limitations for ammonia and nitrate with compliance due by 31 December 2006. Since the existing permit was adopted, the Discharger has completed an assessment of priority pollutants and compliance with national toxic rule (NTR), California toxic rule (CTR), and Basin Plan water quality objectives. The Discharger has designed the Phase 1a project as a tertiary system to comply with ammonia, nitrate and NTR, CTR and Basin Plan standards and objectives. The Discharger anticipates completion of construction of Phase 1a project by 30 October 2006 and operation by 31 December 2006. Following Phase 1a construction and start-up, constructed wetlands

or other treatment measures will be added in Phase 1b if the Discharger determines that Phase 1a will not consistently satisfy new waste discharge requirements. Phase 2 will consist of further expansion necessary to serve future planned development, and an upgrade of the WWTP solids treatment process. The Discharger anticipates beginning the construction of Phase 2 in late 2007. Treatment capacity would be increased from 3.0 mgd to 5.1 mgd in Phase 2.

The Discharger has proposed to expand and modify the treatment system during the Phase 1a project to include a new pump station, the addition of the influent pumping and screening capacity, a new grit removal system, two new oxidation ditches, a new secondary clarifier, equalization basin(s), tertiary filters, and a UV disinfection system. The Phase 1a project is being designed to comply with the limitations in this Order. If the system fails to comply with discharge limitations, the discharger has proposed construction of a Phase 1b project, which would include wetlands. The Discharger has proposed a Phase 2 project, to provide additional capacity, which includes the addition of the influent pumping and screening capacity, the addition of grit removal capacity, the addition of oxidation ditch capacity, a new secondary clarifier, the addition of filtration and UV disinfection capacity, a new anaerobic digester, and a new solid handling building. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

BENEFICIAL USES OF THE RECEIVING WATER

The Basin Plan at page II-2.00 states: "Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not specifically identify beneficial uses for the Western Pacific Interceptor Drainage Canal, but the Basin Plan does identify present and potential uses for the Bear River, to which the Western Pacific Interceptor Drainage Canal is tributary.

The Basin Plan identifies the following beneficial uses for the Bear River: municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial power supply, water contact recreation, canoeing and rafting, non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, potential warm and cold fish migration habitat, potential warm and cold spawning habitat, and wildlife habitat. In addition, State Board Resolution No 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

The Basin Plan on page II-1.00 states: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning…" and with respect to disposal of wastewaters states that "...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses."

In reviewing whether the existing and/or potential uses of the Bear River apply to the Western Pacific Interceptor Drainage Canal**,** the Regional Board has considered the following facts:

a. *Municipal and Domestic Supply and Agricultural Irrigation*

The Regional Board is required to apply the beneficial uses of municipal and domestic supply to the Western Pacific Interceptor Drainage Canal based on State Board Resolution No. 88-63 which was incorporated in the Basin Plan pursuant to Regional Board Resolution 89-056. In addition, the State Water Resources Control Board (SWRCB) has issued water rights for irrigation uses, recreational uses, and fish and wildlife protection and/or enhancement to existing water users along the Western Pacific Interceptor Drainage Canal. Riparian Rights, for landowners along streams and rivers, may not be recorded with the SWRCB. Regional Board staff observed homes and farms along the Bear River, which may be use the water for domestic and irrigation purposes. Since the Western Pacific Interceptor Drainage Canal is an ephemeral stream, the Western Pacific Interceptor Drainage Canal likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in the Western Pacific Interceptor Drainage Canal.

b. *Water Contact and Non-contact Recreation and Esthetic Enjoyment*

The WWTP discharges to the Western Pacific Interceptor Drainage Canal, which is tributary to the Bear River and the Feather River. The Regional Board finds that there is ready public access to the Western Pacific Interceptor Drainage Canal, the Bear River, and the Feather River. Exclusion or restriction of public use is unrealistic. Regional Board staff observed evidence of contact recreational activities at the confluence of the Western Pacific Interceptor Drainage Canal and the Bear River; specifically, campfires, litter, foot trails, and numerous spent shotgun shells were observed along the banks. The Western Pacific Interceptor Canal runs through residential areas of the community of Olivehurst. Olivehurst is experiencing significant residential growth and contact recreational uses of the Western Pacific Interceptor Canal is likely to increase.

c. *Groundwater Recharge*

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since the Western Pacific Interceptor Drainage Canal is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

d. *Freshwater Replenishment*

When water is present in the Western Pacific Interceptor Drainage Canal, there is hydraulic continuity between the Western Pacific Interceptor Drainage Canal and the Bear River. During periods of hydraulic continuity, the Western Pacific Interceptor Drainage Canal adds to the water quantity and may impact the quality of water flowing down stream in the Bear River.

e. *Warm and Cold Freshwater Habitats (including preservation and enhancement of fish and invertebrates), Potential Warm and Cold Spawning Habitats, and Wildlife Habitat*

The Western Pacific Interceptor Drainage Canal is tributary to the Bear River. The Bear River flows to the Feather River. The California Department of Fish and Game (DFG) has recorded the presence of adult salmonids and juvenile non-natal rearing in the Western Pacific Interceptor
Drainage Canal and anadromous fish species in Reeds Creek, a tributary to the Western Pacific Interceptor Drainage Canal. Regional Board staff observed the presence of fish at the Western Pacific Interceptor Drainage Canal and at the confluence of the Bear River and the Western Pacific Interceptor Drainage Canal. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/l.

Upon review of the flow conditions, habitat values, and beneficial uses of the Western Pacific Interceptor Drainage Canal, and the facts described above, the Regional Board finds that the beneficial uses identified in the Basin Plan for the Bear River are applicable to the Western Pacific Interceptor Drainage Canal.

NO AVAILABLE DILUTION FOR THE RECEIVING WATER

The Regional Board finds that based on the available information, that the Western Pacific Interceptor Drainage Canal, absent the discharge, is an ephemeral stream. The ephemeral nature of the Western Pacific Interceptor Drainage Canal means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the Western Pacific Interceptor Drainage Canal help support the aquatic life. Both conditions may exist within a short time span, where the Western Pacific Interceptor Drainage Canal would be dry without the discharge and periods when sufficient background flows
provide hydraulic continuity with the Bear River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events.

REASONABLE POTENTIAL ANALYSIS FOR EFFLUENT LIMITATIONS– CTR CONSTITUENTS

The Code of Federal Regulations, 40 CFR 122.44 (d)(1)(iii), states: "…a discharge causes, has a reasonable potential to cause, or contribute to an in-stream excursion above allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant."

All mass-based Effluent Limitations are calculated using the following equation:

$$X \frac{mg}{l} \times 8.345 \times Flow(mgd) = Y \frac{lbs}{day} \qquad (*)$$

where

X = Concentration-based Effluent Limitation
Y = Mass-based Effluent Limitation

All maximum detected effluent sampling results and controlling water quality criteria for CTR constituents are summarized in the table below:

Constituents	Maximum Detected Concentration (µg/l)	Controlling Water Quality Criteria	Reasonable Potential?
1,4-Dichlorobenzene	0.46	U.S. EPA CTR Human Health Criteria	No
Dibromochloromethane	1.6	U.S. EPA CTR Human Health Criteria	Yes
Dichlorobromomethane	10	U.S. EPA CTR Human Health Criteria	Yes
Dichloromethane (or Methylene chloride)	1.3	U.S. EPA CTR Human Health Criteria	No
Tetrachloroethene	4.9	U.S. EPA NTR Human Health Criteria	Yes
Toluene	0.2	U.S.EPA CTR Human Health Criteria	No
Trichloroethene	0.76	U.S. EPA NTR Human Health Criteria	No
Bis(2-ethylhexyl) phthalate	15	U.S. EPA NTR Human Health Criteria	Yes
Diethyl phthalate	1.0	U.S. EPA NTR Human Health Criteria	No
Antimony	0.46	U.S.EPA CTR Human Health Criteria	No
Arsenic	3.1	Primary Maximum Contaminant Level	No
Cadmium	0.3	U.S. EPA CTR Freshwater Aquatic Life Criteria	No
Chromium III	9.5	U.S. EPA NTR Freshwater Aquatic Life Criteria	No
Copper	26	U.S. EPA CTR Freshwater Aquatic Life Criteria	Yes
Lead	0.66	U.S. EPA CTR Freshwater Aquatic Life Criteria	No
Mercury	0.0066	U.S.EPA CTR Human Health Criteria	No

Constituents	Maximum Detected Concentration (µg/l)	Controlling Water Quality Criteria	Reasonable Potential?
Nickel	6.1	U.S. EPA CTR Freshwater Aquatic Life Criteria	No
Selenium	1.7	U.S. EPA NTR Freshwater Aquatic Life Criteria	No
Silver	0.32	U.S. EPA CTR Freshwater Aquatic Life Criteria	No
Zinc	42	U.S. EPA CTR Freshwater Aquatic Life Criteria	No

1,4-Dichlorobenzene

Discharger Self Monitoring Reports (DSMRs) and the Report of Waste Discharge (ROWD) indicate that 1,4-dichlorobenzene was detected above the Method Detection Limit (MDL) and below the Reporting Limit (RL) (reported as "J Flag") in 6 of 12 effluent samples. Detected concentrations of 1,4-dichlorobenzene were estimated from 0.11 µg/l to 0.46 µg/l. The MDLs range from 0.11 µg/l to 0.2 µg/l. The RLs range from 0.5 µg/l to 2 µg/l.

U.S. EPA human health CTR criteria for 1,4-dichlorobenzene are 400 µg/l (for waters that are sources of drinking water) and 2,600 µg/l (for waters that are not sources of drinking water but from which aquatic organisms may be consumed) as a 30-day average. Because the maximum detected concentration of 1,4-dichlorobenzene was reported as "J Flag" and that RLs do not exceed CTR criteria, it indicates that there is no reasonable potential for 1,4-dichlorobenzene to cause or contribute to an exceedance of a water quality standard. Therefore, no Effluent Limitation for 1,4-dichlorobenzene is included in this Order.

Dibromochloromethane

Dibromochloromethane is one of the chemicals in the trihalomethanes (THM) group that are formed along with other disinfection by products when chlorine or other disinfectants used to control microbial contaminants in wastewater react with naturally occurring organic and inorganic matter in water. The THM group includes chloroform, bromodichloromethane, dibromochloromethane, and bromoform. Dibromochloromethane poses the most serious cancer risk in the THM group. THM levels tend to increase with pH, temperature, time, and the level of "precursors" present. Precursors are organic material that reacts with chlorine to form THM. The Olivehurst PUD uses chlorine to disinfect its wastewater.

DSMRs and the ROWD indicate that the maximum detected effluent concentration of dibromochloromethane was 1.6 µg/l. U.S. EPA established human health CTR criteria of 0.41 µg/l (for waters from which both water and aquatic organisms are consumed) and 34 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected effluent concentration of dibromochloromethane exceeds the human health CTR criterion for waters from which both water and aquatic organisms are consumed. Therefore, this Order contains an average monthly concentration-based Effluent Limitation of 0.41 µg/l for dibromochloromethane based on the human health CTR criterion.

The State Board adopted the SIP on 2 March 2000 and amended it on 26 April 2000. The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP includes the following equation for calculating the maximum daily effluent limitation when the applicable criteria are for the protection of human health:

$$MDEL_{hh} = ECA * \left(\frac{MDEL}{AMEL} \right)_{multiplier}$$

where

ECA = Effluent concentration allowance
AMEL = Average monthly effluent limitation
AMEL = ECA (for the protection of human health) = 0.41 µg/l
$MDEL_{hh}$ = Maximum daily effluent limitation (for the protection of human health)
$\left(\frac{MDEL}{AMEL} \right)_{multiplier} = 2.01$

Using the equation above, the maximum daily concentration-based Effluent Limitation for dibromochloromethane is calculated at 0.82 µg/l. In addition, this Order contains an average monthly and maximum daily mass-based Effluent Limitations for dibromochloromethane, calculated using the equation (*). A time schedule has been included in this Order for compliance with the dibromochloromethane limitation.

Dichlorobromomethane

Dichlorobromomethane is a colorless, nonflammable liquid. Most bromodichloromethane is formed as a by-product when chlorine is added to the wastewater to kill bacteria. The Department of Health and Human Services (DHHS) has determined that dichlorobromomethane is reasonably anticipated to be a human carcinogen.

U.S. EPA human health CTR criteria for dichlorobromomethane are 0.56 µg/l (for waters from which both water and aquatic organisms are consumed) and 46 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

DSMRs and the ROWD indicate that dichlorobromomethane was detected in the effluent at a maximum concentration of 10 µg/l. The maximum detected concentration of dichlorobromomethane exceeds the human health CTR criterion for waters from which both water and aquatic organisms are consumed. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of the CTR criterion for dichlorobromomethane. Based on these considerations, this Order contains an average monthly concentration-based Effluent Limitation of 0.56 µg/l for dichlorobromomethane based on the human health CTR criterion.

The State Board adopted the SIP on 2 March 2000 and amended it on 26 April 2000. The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP includes the following equation for calculating the maximum daily effluent limitation (MDEL) when the applicable criteria are for the protection of human health:

$$MDEL_{hh} = ECA * \left(\frac{MDEL}{AMEL} \right)_{multiplier}$$

where

ECA = Effluent concentration allowance
ECA = Average monthly effluent limitation (for the protection of human health)
AMEL = Average monthly effluent limitation = 0.56 µg/l
$MDEL_{hh}$ = Maximum daily effluent limitation (for the protection of human health)
$\left(\frac{MDEL}{AMEL} \right)_{multiplier} = 2.0$

Using the above equation, the maximum daily concentration-based Effluent Limitation for dichlorobromomethane is calculated at 1.1 µg/l. In addition, this Order contains monthly average and maximum daily mass-based Effluent Limitations for dichlorobromomethane, calculated using the equation (*). A time schedule has been included in this Order for compliance with the dichlorobromomethane limitation.

Dichloromethane (also known as Methylene Chloride)

DSMRs and the ROWD indicate that dichloromethane was detected above the MDL and below the RL (reported as "J Flag") in 7 of 12 effluent samples. Detected concentrations of dichloromethane were estimated from 0.095 µg/l to 1.3 µg/l. The MDLs were reported from 0.06 µg/l to 0.88 µg/l. The RL was reported at 2 µg/l.

U.S. EPA human health CTR criteria for dichloromethane are 4.7 µg/l (for waters from which both water and aquatic organisms are consumed) and 1,600 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

Because the maximum detected concentration of dichloromethane was reported as "J Flag" and that the RL does not exceed human health CTR criteria, it indicates that the discharge from the Olivehurst PUD WWTP does not have a reasonable potential to cause an exceedance of CTR criteria for dichloromethane. Therefore, no Effluent Limitation for dichloromethane is included in this Order.

Tetrachloroethene (also known as tetrachloroethylene or PCE)

DSMRs and the ROWD indicate that tetrachloroethene was detected in each of 12 effluent samples. The maximum detected effluent concentration of tetrachloroethene was reported at 4.9 µg/l. U.S. EPA human health NTR criteria for tetrachloroethene are 0.8 µg/l (for waters from which both water and aquatic organisms are consumed) and 8.85 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of tetrachloroethene exceeds the human health NTR criterion for waters from which both water and aquatic organisms are consumed. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of the NTR criterion for tetrachloroethene. This Order contains an average monthly concentration-based Effluent Limitation of 0.8 µg/l for tetrachloroethene based on the human health NTR criterion.

The State Board adopted the SIP on 2 March 2000 and amended it on 26 April 2000. The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP includes the following equation for calculating the maximum daily effluent limitation (MDEL) when the applicable criteria are for the protection of human health:

$$MDEL_{hh} = ECA * \left(\frac{MDEL}{AMEL} \right)_{multiplier}$$

where

ECA = Effluent concentration allowance
ECA = Average monthly effluent limitation (for the protection of human health)
AMEL = Average monthly effluent limitation = 0.8 µg/l
$MDEL_{hh}$ = Maximum daily effluent limitation (for the protection of human health)
$\left(\frac{MDEL}{AMEL} \right)_{multiplier} = 2.54$

Using the above equation, the maximum daily concentration-based Effluent Limitation for tetrachloroethene is calculated at 2.0 µg/l. In addition, this Order contains monthly average and maximum daily mass-based Effluent Limitations for tetrachloroethene, calculated using the equation (*). A time schedule has been included in this Order for compliance with the tetrachloroethene limitation.

Toluene

DSMRs and the ROWD indicate that toluene was detected above the MDL and below the RL (reported as "J Flag") in 3 of 12 effluent samples. Detected concentrations of toluene were estimated from 0.1 µg/l to 0.2 µg/l. The MDLs were reported from 0.07 µg/l to 0.4 µg/l. The RLs were reported from 0.5 µg/l to 2 µg/l.

U.S. EPA human health CTR criteria for toluene are 6,800 µg/l (for waters from which both water and aquatic organisms are consumed) and 200,000 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

Because the maximum detected concentration of toluene was reported as "J Flag" and that RLs do not exceed CTR criteria, it indicates that the discharge from the WWTP does not have a reasonable potential to cause an exceedance of CTR criteria for toluene. Therefore, no Effluent Limitation for toluene is included in this Order.

Trichloroethene

DSMRs and the ROWD indicate that trichloroethene was detected in the effluent at a maximum concentration of 0.76 µg/l. U.S. EPA human health NTR criteria for trichloroethene are 2.7 µg/l (for waters from which both water and aquatic organisms are consumed) and 81 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

Because the maximum detected concentration of trichloroethene was reported as "J Flag" and that RLs do not exceed NTR criteria, it indicates that the discharge from the WWTP does not have a reasonable potential to cause an exceedance of NTR criteria for trichloroethene. Therefore, no Effluent Limitation for trichloroethene is included in this Order.

Bis(2-ethylhexyl)phthalate

Bis(2-ethylhexyl)phthalate is a colorless oily liquid that is extensively used as a plasticizer in a wide variety of industrial, domestic, and medical products. It is an environmental contaminant and has been detected in groundwater, surface water, drinking water, azir, soil, plants, fish, and animals.

Bis(2-ethylhexyl)phthalate is in polyvinyl chloride plastic products like toys, vinyl upholstery, shower curtains, adhesives, and coatings. Bis(2-ethylhexyl)phthalate is also used in inks, pesticides, cosmetics, and vacuum pump oil. Bis(2-ethylhexyl)phthalate is insoluble in water, miscible with mineral oil and hexane, and soluble in most organic solvents. It is easily dissolved in body fluids such
as plasma. Bis(2-ethylhexyl)phthalate is a combustible liquid; it may burn, but does not readily ignite. It produces poisonous gas in a fire. When heated to decomposition, it emits acrid smoke. The Department of Health and Human Services has determined that bis(2-ethylhexyl)phthalate may reasonably be anticipated to be a carcinogen. Repeated exposure to bis(2-ethylhexyl)phthalate may affect kidneys and livers.

DSMRs and the ROWD indicate that bis(2-ethylhexyl)phthalate was detected in 2 of 4 effluent samples. Bis(2-ethylhexyl)phthalate was detected at a maximum effluent concentration of 15 µg/l. U.S. EPA human health NTR criteria for bis(2-ethylhexyl)phthalate are 1.8 µg/l (for waters from which both water and aquatic organisms are consumed) and 5.9 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of bis(2-ethylhexyl)phthalate exceeds human health NTR criteria. Therefore, the discharge from the

Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of human health NTR criteria for bis(2-ethylhexyl)phthalate. This Order contains an average monthly concentration-based Effluent Limitation of 1.8 µg/l for bis(2-ethylhexyl)phthalate based on the human health NTR criterion.

The State Board adopted the SIP on 2 March 2000 and amended it on 26 April 2000. The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP includes the following equation for calculating the maximum daily effluent limitation (MDEL) when the applicable criteria are for the protection of human health:

$$MDEL_{hh} = ECA * \left(\frac{MDEL}{AMEL} \right)_{multiplier}$$

where

ECA = Effluent concentration allowance
ECA = Average monthly effluent limitation (for the protection of human health)
AMEL = Average monthly effluent limitation = 1.8 µg/l
$MDEL_{hh}$ = Maximum daily effluent limitation (for the protection of human health)
$\left(\frac{MDEL}{AMEL} \right)_{multiplier}$ = 2.01

Using the equation above, the maximum daily concentration-based Effluent Limitation for bis(2-ethylhexyl)phthalate is calculated at 3.6 µg/l. In addition, this Order contains average monthly and maximum daily mass-based Effluent Limitations for bis(2-ethylhexyl)phthalate, calculated using the equation (*). A time schedule has been included in this Order for compliance with the bis(2-ethylhexyl)phthalate limitation.

Diethyl phthalate

DSMRs and the ROWD indicate that diethyl phthalate was detected above the MDL and below the RL (reported as "J Flag") in 1 of 4 effluent samples. Detected concentration of diethyl phthalate was estimated at 1 µg/l. The MDL and the RL for diethyl phthalate were reported at 1 µg/l and 2 µg/l, respectively.

U.S. EPA human health NTR criteria for diethyl phthalate are 23,000 µg/l (for waters from which both water and aquatic organisms are consumed) and 120,000 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

Because the maximum detected concentration of diethyl phthalate was reported as "J Flag" and that the RL does not exceed NTR criteria, it indicates that the discharge from the WWTP does not have a reasonable potential to cause an exceedance of a water quality standard for diethyl phthalate. Therefore, no Effluent Limitation for diethyl phthalate is included in this Order.

Antimony

DSMRs and the ROWD indicate that antimony was detected above the MDL and below the RL (reported as "J Flag") in 2 of 11 effluent samples. Detected concentrations of antimony were estimated at 0.4 µg/l and 0.46 µg/l. The MDL and the RL were reported at 0.3 µg/l and 1 µg/l, respectively.

U.S. EPA human health CTR criteria for antimony are 14 µg/l (for waters from which both water and aquatic organisms are consumed) and 4,300 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

Because the maximum detected concentration of antimony was reported as "J Flag" and that the RL does not exceed CTR criteria, it indicates that the discharge from the WWTP does not have a reasonable potential to cause an exceedance of a water quality standard for antimony. Therefore, no Effluent Limitation for antimony is included in this Order.

Arsenic

Arsenic is a toxic substance that is known to cause adverse human health effects. Exposure to arsenic at high levels poses serious health effects as it is a known human carcinogen. Studies have shown that prolonged arsenic exposure significantly increases the risk of contracting various forms of cancer. In addition, it has been reported to affect the vascular system in humans and has been associated with the development of diabetes.

Arsenic can combine with other elements to form inorganic and organic arsenicals. In the environment, arsenic combines readily with many elements to form inorganic compounds: with hydrogen to form arsine, an extremely poisonous gas; with oxygen to form a pentoxide and trioxide (As_2O_3 or As_4O_6), a deadly poison also called arsenic (III) oxide, arsenious oxide, white arsenic, or, simply, arsenic; with the halogens; and with sulfur. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Organic arsenic compounds are less toxic than inorganic arsenic compounds. While food contains both inorganic and organic arsenicals, primarily inorganic forms are present in water. Exposure to high levels of some organic arsenic compounds may cause similar effects as inorganic arsenic.

DSMRs and the ROWD indicate that arsenic was detected in 2 of 11 effluent samples. The maximum detected effluent concentration of arsenic was estimated at 3.1 µg/l (reported as "J Flag"). The MDLs were reported at 0.7 µg/l and 1.3 µg/l. The RLs were reported at 1 µg/l and 5 µg/l. Pursuant to the Basin Plan Tributary Rule, the municipal and domestic water supply beneficial use designation of the Bear River is applied to the Western Pacific Interceptor Drainage Canal. For beneficial use that is

designated as municipal water and domestic water supply, the Basin Plan prohibits the discharge that contains chemicals in concentrations that exceed California drinking water Maximum Contaminant Levels (MCLs) and toxic substances in toxic amounts. U.S. EPA freshwater aquatic life CTR criteria for arsenic are 150 µg/l (as a four-day average) and 340 µg/l (as a one-hour average). On 31 October 2001, U.S. EPA adopted a new drinking water standard for arsenic. The new Primary MCL for arsenic is 10 µg/l. The drinking water standards and human health criteria for arsenic are lower than the aquatic life CTR criteria. Therefore, to protect the municipal and domestic beneficial uses, drinking water standards or human health criteria shall be used to establish effluent limitations.

Because the maximum detected concentration of arsenic was reported as "J Flag" and that RLs do not exceed any water quality criteria, it indicates that the discharge from the WWTP does not have a reasonable potential to cause an exceedance of a water quality standard for arsenic. Therefore, no effluent limitation for arsenic is included in this Order.

Cadmium

DSMRs and the ROWD indicate that cadmium was detected above the MDL and below the RL (reported as "J Flag") in 4 of 11 effluent samples. Detected concentrations of cadmium were estimated from 0.044 µg/l to 0.3 µg/l. The MDLs were reported at 0.03 µg/l and 0.13 µg/l. The RLs were reported at 0.5 µg/l and 1.0 µg/l. U.S. EPA developed hardness-dependent freshwater aquatic life CTR criteria for cadmium. U.S. EPA recommended conversion factors (CF) to translate dissolved concentrations to total concentrations.

Conversion factors based on the hardness in freshwater are calculated using the following equations:

$$CF_C = \left(1.101672 - \left\{\left[\ln(hardness)\right] \times 0.041838\right\}\right)$$

$$CF_A = \left(1.136672 - \left\{\left[\ln(hardness)\right] \times 0.041838\right\}\right)$$

where

CF_C = conversion factor for chronic criteria
CF_A = conversion factor for acute criteria

The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for cadmium are presented in total concentrations. These criteria are presented as follows:

$$CCC = e^{\left\{0.7852\left[\ln(hardness)\right] - 2.715\right\}}$$

$$CMC = e^{\left\{1.128\left[\ln(hardness)\right] - 3.6867\right\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest measured hardness from the effluent of 48 mg/l is used to determine the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average). Using above equations, the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) for cadmium are calculated at 1.4 µg/l and 2.0 µg/l, respectively. Because the maximum detected concentration of cadmium was reported as "J Flag" and that RLs do not exceed freshwater aquatic life CTR criteria, it indicates that the discharge from the WWTP does not have a reasonable potential to cause an exceedance of a water quality standard for cadmium. Therefore, no effluent limitation for cadmium is included in this Order.

Chromium (III)

Chromium is a naturally occurring element found in rocks, animals, plants, soil, and in volcanic dust and gases. Total chromium measures the combined levels of trivalent chromium (chromium III) and hexavalent chromium (chromium VI). Chromium (III) occurs naturally in the environment and is an essential nutrient. Chromium (VI) is generally produced by industrial processes, such as chrome plating, dyes and pigments, leather tanning, and wood preserving. There is evidence to suggest that chromium (VI) may be converted to chromium (III) in the human body; particularly in the acidic environment of the digestive system. In addition, chromium (III) is the most stable form. Therefore, total chromium in the effluent is likely to be in the chromium (III) form. Based on these considerations, water quality standards for chromium (III) are used to evaluate whether detected concentrations of chromium (III) in the discharge from the Olivehurst PUD WWTP cause or contribute to an exceedance of a water quality standard.

Analytical data provided by the Discharger included monitoring results for chromium (total) and chromium (VI). Detected concentrations of chromium (III) are calculated by taking the difference of chromium (VI) concentration from the chromium (total) concentration. Detected concentrations of chromium (III) are presented in the following table:

Sampling Dates	Unit	Chromium (total)	Chromium (VI)	Chromium (III)
1/14/02	µg/l	1.8	0.2	1.6
3/11/02	µg/l	5.3	1.25	4.1
4/10/02	µg/l	2.2	0.55	1.7
5/13/02	µg/l	1.7	0.55	1.2
6/10/02	µg/l	0.93	0.55	0.38
7/8/02	µg/l	2.2	1.25	0.95
8/12/02	µg/l	3.6	0.55	3.1
9/9/02	µg/l	3.5	1.25	2.3
10/15/02	µg/l	3.6	2.5	1.1
11/13/02	µg/l	12	2.5	9.5

U.S. EPA developed hardness-dependent freshwater aquatic life NTR criteria for chromium. U.S. EPA recommended conversion factors to translate dissolved concentrations to total concentrations. Conversion factors for chromium (III) in freshwater are 0.316 and 0.860 for acute and chronic criteria, respectively. Continuous concentration (four-day average) and maximum concentration (one-hour
average) criteria for chromium are presented in total concentrations. These criteria are determined using the following equations:

$$CCC = e\{0.819[\ln(hardness)] + 1.561\} \qquad CMC = e\{0.819[\ln(hardness)] + 3.688\}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest reported hardness of 48 mg/l collected from the effluent is used to determine the criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average). Using above equations, the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) are calculated at 113 µg/l and 952 µg/l, respectively.

Detected concentrations of chromium (III) do not exceed freshwater aquatic life NTR criteria for chromium (III). Therefore, no effluent limitation for chromium (III) is included in this Order.

Copper

DSMRs and the ROWD indicate that copper was detected in each of the 12 effluent samples. The maximum detected effluent concentration of copper was reported at 26 µg/l. The CTR freshwater aquatic life hardness-dependent criteria for copper are presented in dissolved concentrations. U.S. EPA recommended conversion factors to translate dissolved concentrations to total concentrations. The conversion factor for copper in fresh water is 0.960 for both acute and chronic criteria. The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for copper are presented in total concentrations. The criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) are calculated using the following equations:

$$CCC = e^{\{0.8545[\ln(hardness)]-1.702\}}$$
$$CMC = e^{\{0.9422[\ln(hardness)]-1.700\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest reported hardness from the effluent of 48 mg/l is used to determine the criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average). Using above equations, the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) are calculated at 5.0 µg/l and 7.0 µg/l, respectively.

U.S. EPA human health CTR criterion is 1,300 µg/l (for waters from which both water and aquatic organisms are consumed) as a 30-day average. The maximum detected concentration of copper exceeds freshwater aquatic life CTR criteria. Therefore, the discharge from the Olivehurst PUD WWTP does have a reasonable potential to cause or contribute to an exceedance of freshwater aquatic life CTR criteria for copper.

The State Board adopted the SIP on 2 March 2000 and amended it on 26 April 2000. The SIP includes methodology for establishing effluent limitations for priority toxic pollutants included in the NTR and CTR. The SIP includes following equations for calculating the maximum daily and average monthly effluent limitations where applicable water quality criteria are for the protection of freshwater aquatic life:

$LTA_{acute} = ECA_{acute} * ECA\ multiplier_{acute99}$
$LTA_{chronic} = ECA_{chronic} * ECA\ multiplier_{chronic99}$
$AMEL_{aquatic\ life} = LTA_{min}(LTA_{acute}, LTA_{chronic}) * AMEL\ multiplier_{95}$
$MDEL_{aquatic\ life} = LTA_{min}(LTA_{acute}, LTA_{chronic}) * MDEL\ multiplier_{99}$

where

ECA_{acute} = Effluent Concentration Allowance for Acute Condition
$ECA_{chronic}$ = Effluent Concentration Allowance for Chronic Condition
$ECA\ multiplier_{acute99}$ = Multiplying Factor Adjusted for Effluent Variability (for Acute Condition) =0.23
$ECA\ multiplier_{chronic99}$ = Multiplying Factor Adjusted for Effluent Variability (for Chronic Condition) = 0.41
LTA_{acute}, $LTA_{chronic}$ = Long-term Average Discharge Condition for Acute and Chronic Conditions

$AMEL_{aquatic\ life}$ = Average Monthly Effluent Limitation
$MDEL_{aquatic\ life}$ = Maximum Daily Effluent Limitation

This Order includes hardness-dependent average monthly and maximum daily concentration-based Effluent Limitations (presented in total concentration) calculated using above equations for copper (see Attachment D). In addition, this Order also includes average monthly and maximum daily mass-based Effluent Limitations for copper calculated using the equation (*). A time schedule has been included in this Order for compliance with the copper limitation.

Lead

DSMRs and the ROWD indicate that lead was detected in four of twelve effluent samples. Detected concentrations of lead ranged from 0.22 µg/l to 0.66 µg/l. The CTR freshwater aquatic life hardness-dependent criteria for lead are presented in dissolved concentrations. U.S. EPA recommended conversion factors to translate dissolved concentrations to total concentrations.

Conversion factors based on the hardness in freshwater are calculated using the following equations:

$$CF_C = \left(1.46203 - \left\{\left[\ln(hardness)\right] \times 0.145712\right\}\right)$$
$$CF_A = \left(1.46203 - \left\{\left[\ln(hardness)\right] \times 0.145712\right\}\right)$$

where

CF_C = conversion factor for chronic criteria
CF_A = conversion factor for acute criteria

The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for lead are presented in total concentrations. These criteria are presented as follows:

$$CCC = e^{\left\{1.273\left[\ln(hardness)\right] - 4.705\right\}}$$
$$CMC = e^{\left\{1.273\left[\ln(hardness)\right] - 1.460\right\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest measured hardness from the effluent of 48 mg/l is used to determine the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average). Using above equations, the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) are calculated at 1.25 µg/l and 32.1 µg/l, respectively. Detected concentrations of lead do not exceed freshwater aquatic life CTR criteria. Therefore, no effluent limitation for lead is included in this Order.

Mercury

Human health CTR criteria for mercury are 0.05 µg/l (for waters from which both water and aquatic organisms are consumed) and 0.051 µg/ (for waters from which only aquatic organisms are consumed) as a 30-day average. In 40 CFR Part 131, U.S. EPA acknowledges that human health

criteria may not be protective of some aquatic or endangered species. Both values are controversial and subject to change. In the CTR, U.S. EPA reserved the mercury criteria for fresh water and aquatic life and may adopt new criteria at a later date.

DSMRs and the ROWD indicate that mercury was detected at a maximum effluent concentration of 0.0066 µg/l. The maximum detected concentration of mercury does not exceed CTR criteria. Therefore, no Effluent Limitation for mercury is included in this Order.

Nickel

DSMRs and the ROWD indicate that nickel was detected in 11 of 12 effluent samples. Detected effluent concentrations of nickel ranged from 0.32 µg/l to 6.1 µg/l.

U.S. EPA developed hardness-dependent freshwater aquatic life CTR criteria. U.S. EPA recommended conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for nickel in freshwater are 0.998 and 0.997 for acute and chronic criteria, respectively. The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for nickel are presented in total concentrations. These criteria are determined using the following equations:

$$CCC = e^{\{0.846[\ln(hardness)]+0.0584\}} \qquad CMC = e^{\{0.846[\ln(hardness)]+2.255\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest reported hardness of 48 mg/l collected from the effluent is used to determine the criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average). Using above equations, the hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) for nickel are calculated at 28 µg/l and 252 µg/l, respectively.

U.S. EPA human health CTR criteria for nickel are 610 µg/l (for waters from which both water and aquatic organisms are consumed) and 4,600 µg/l (for waters from which only aquatic organisms are consumed) as a 30-day average.

Detected concentrations of nickel do not exceed CTR criteria. Therefore, no effluent limitation for nickel is included in this Order.

Selenium

U.S. EPA freshwater aquatic life NTR criteria continuous concentration (four-day average) and maximum concentration (one-hour average) for selenium are 5 µg/l and 20 µg/l, respectively.

DSMRs and the ROWD indicate that selenium was detected in the effluent at a maximum concentration of 1.7 µg/l. The maximum detected concentration of selenium does not exceed NTR criteria. Therefore, no Effluent Limitation for selenium is included in this Order.

Silver

DSMRs and the ROWD indicate that silver was detected in 1 of 12 effluent samples at an estimated concentration (reported as "J Flag") of 0.32 µg/l. The MDL and the RL were reported at 0.09 µg/l and 1.0 µg/l, respectively.

U.S. EPA hardness-dependent freshwater aquatic life CTR maximum concentration (one-hour average) criterion for silver is presented in the total concentration. This criterion is determined using the following equation:

$$CMC = e^{\{1.72[\ln(hardness)]-6.52\}}$$

where

CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest reported hardness of 48 mg/l collected from the effluent is used to determine the criteria maximum concentration (one-hour average). Using the above equation, the hardness-dependent criteria maximum concentration (one-hour average) for silver is calculated at 1.1 µg/l.

Because detected concentration of silver was reported as "J Flag" and that the RL does not exceed the freshwater aquatic life CTR criterion, it indicates that the discharge from the Olivehurst PUD WWTP does not have a reasonable potential to cause an exceedance of a water quality standard for silver. Therefore, no effluent limitation for silver is included in this Order.

Zinc

DSMRs and the ROWD indicate that zinc was detected in each of the 11 effluent samples. Detected concentrations of zinc ranged from 18 µg/l to 42 µg/l. U.S. EPA developed hardness-dependent freshwater aquatic life CTR criteria. U.S. EPA recommended conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are

0.978 and 0.986 for acute and chronic criteria, respectively. The continuous concentration (four-day average) and the maximum concentration (one-hour average) criteria for zinc are presented in total concentrations. These criteria are determined using the following equations:

$$CCC = e^{\{0.8473[\ln(hardness)]+0.884\}} \qquad CMC = e^{\{0.8473[\ln(hardness)]+0.884\}}$$

where

CCC = criteria continuous concentration (four-day average)
CMC = criteria maximum concentration (one-hour average)

Since hardness data of the receiving stream were not available, the lowest reported hardness of 48 mg/l collected from the effluent is used to determine the criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average). Using the above equations, both hardness-dependent criteria continuous concentration (four-day average) and the criteria maximum concentration (one-hour average) for zinc are calculated at 64.3 µg/l.

Detected concentrations of zinc do not exceed CTR criteria. Therefore, no Effluent Limitation for zinc is included in this Order.

Organochlorine Pesticides

The Basin Plan includes a water quality objective for pesticides on page III-6.0, which states: "No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses" and that " Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within the accuracy of analytical methods approved by the Environmental Protection Agency or the Executive Officer".

DSMRs and the ROWD indicate that alpha-hexachlorocyclohexane (alpha-BHC), dieldrin, gamma-hexachlorocyclohexane (lindane), 2,4-D, dalapon, and methoxychlor have been detected in the effluent. Alpha-BHC was detected above the MDL and below the RL (reported as "J Flag") at an estimated effluent concentration of 0.0031 µg/l. The MDL and the RL for alpha-BHC were reported at 0.0029 µg/l and 0.024 µg/l, respectively. Dieldrin was detected at an estimated concentration (reported as "J Flag") of 0.0073 µg/l. The MDL and the RL for dieldrin were reported at 0.0067 µg/l and 0.048 µg/l, respectively. Gamma-BHC (Lindane) was detected at an estimated effluent concentration (reported as "J Flag") of 0.0075 µg/l. The MDL and the RL for Lindane were reported at 0.0029 µg/l and 0.024 µg/l, respectively. 2,4-D was detected at an estimated maximum effluent concentration of 1.2 µg/l (reported as "J Flag"). The MDL and the RL for 2,4-D were reported at 0.1µg/l and 10 µg/l, respectively. Dalapon was detected at a maximum effluent concentration of 8.3 µg/l. Methoxychlor was detected at an estimated effluent concentration (reported as "J Flag") of 0.081 µg/l. The MDL and the RL for methoxychlor were reported at 0.016 µg/l and 0.048 µg/l, respectively.

Human health CTR criteria for alpha-BHC, dieldrin, and gamma-BHC (Lindane) are 0.0039 µg/l, 0.00014 µg/l, and 0.019 µg/l, respectively (for waters from which both water and aquatic organisms are consumed) and 0.013 µg/l, 0.00014 µg/l, and 0.063 µg/l, respectively (for waters from which only aquatic organisms are consumed) as a 30-day average. The current Primary MCLs for 2,4-D and dalapon are 70 µg/l and 200 µg/l, respectively. U.S. EPA and the Department of Health Service established a Primary MCL of 40 µg/l and 30 µg/l for methoxychlor, respectively. The Ambient Water Quality freshwater aquatic life criterion for methoxychlor is 0.03 µg/l (as a maximum concentration).

The Basin Plan objective is more restrictive than CTR water quality standards for organochlorine pesticides. The CTR states that CTR standards apply unless the State's criteria are more restrictive. The presence of alpha-BHC, dieldrin, gamma-BHC (Lindane), 2,4-D, dalapon, and methoxychlor in the effluent indicates that the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause or contribute to an exceedance of Basin Plan objectives for organochlorine pesticides. This Order includes an Effluent Limitation for organochlorine pesticides based on the Basin Plan objective.

REASONABLE POTENTIAL ANALYSIS FOR EFFLUENT LIMITATIONS – NON-CTR CONSTITUENTS

The reasonable potential analysis is included in the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (TSD). The analysis assists to determine whether the discharge may: (1) cause, (2) have a reasonable to cause, (3) or contribute to an exceedance of any water quality criteria or objectives. Reasonable potential was determined by calculating the projected maximum effluent concentration (MEC) for each constituent and comparing it to applicable water quality criteria or objective. If the projected MEC exceeded a criterion or objective, the discharge was determined to have reasonable potential to cause or contribute to an exceedance of a water quality criterion or objective for that constituent. The projected MEC is determined by multiplying the maximum detected effluent concentration with a reasonable potential multiplying factor that accounts for statistical variation. The multiplying factor (for 99% confidence level and 99% probability basis) is determined using the number of reported effluent sampling results and the coefficient of variation (CV) of effluent sampling results. For less than 10 effluent data, CV is estimated to equal 0.6. In accordance with the SIP, non-detect results were counted as one-half the detection level when calculating the mean. The reasonable potential analysis is based on the methods used in the TSD.

All maximum detected effluent sampling results for non-CTR constituents and controlling water quality criteria for the receiving water for are summarized in the table below:

Constituents	Maximum Detected Concentration (µg/l)	Number of Samples	Controlling Water Quality Criteria (µg/l)
Chloroethane	0.12	12	Taste and Odor threshold
Chloroform	43	12	Basin Plan chemical constituent objective and Primary MCL

Constituents	Maximum Detected Concentration (µg/l)	Number of Samples	Controlling Water Quality Criteria (µg/l)
Cis-1,2-dichloroethene	0.79	12	Basin Plan chemical constituent objective and Primary MCL
MTBE	0.71	12	Basin Plan chemical constituent objective and Secondary MCL
Xylenes	1.7	12	Basin Plan chemical constituent objective and Secondary MCL
Aluminum	480	11	Basin Plan narrative toxicity objective and U.S.EPA Ambient Water Quality Freshwater Aquatic Life Criteria
Barium	46	11	Basin Plan chemical constituent objective and Primary MCL
Fluoride	940	11	Agricultural Goal
Iron	220	11	Basin Plan chemical constituent objective and Secondary MCL
Manganese	360	11	Basin Plan chemical constituent objective and Secondary MCL
Tributyltin	0.114	11	Basin Plan narrative toxicity objective and U.S. EPA Ambient Water Quality Freshwater Aquatic Life Criteria
Chloride	64,000	11	Agricultural Goal
MBAS	150	12	Basin Plan chemical constituent objective and Secondary MCL
Nitrate (as N)	140,000	12	Basin Plan narrative objective and Primary MCL
Nitrite (as N)	460	12	Basin Plan narrative objective and Primary MCL
Phosphorous	2,700	12	No criteria available
Sulfate	290,000	11	Basin Plan chemical constituent objective and Secondary MCL
Bentazon	0.24	4	Basin Plan chemical constituent objective and Primary MCL
Glyphosate	8	4	Basin Plan chemical constituent objective and Primary MCL
Picloram	0.16	4	Basin Plan chemical constituent objective and Primary MCL

Calculated coefficient of variation (CV), reasonable potential multiplying factors, and calculated projected MEC for non-CTR constituents are summarized in the following table:

Constituents	Coefficient of Variation (CV)	Reasonable Potential Multiplying Factor (99% Confidence Level and 99% Probability Basis)	Projected MEC (µg/l)	Reasonable Potential?
Chloroethane	0.6	2.8	0.336	No
Chloroform	0.589	2.76	119	Yes
Cis-1,2-dichloroethene	0.751	3.46	2.7	No
MTBE	0.761	3.51	2.5	No
Xylenes	0.6	2.8	4.8	No
Aluminum	1.311	6.87	3,298	Yes
Barium	1.141	5.85	269	No
Fluoride	1.234	6.4	6,016	No
Iron	1.054	5.32	1,170	Yes
Manganese	1.751	9.76	3,514	Yes
Tributyltin	1.793	10.1	1.15	Yes
MBAS	1.117	5.3	795	Yes
Nitrate (as N)	1.65	8.45	1,183,000	Yes
Nitrite (as N)	0.6	2.8	1,288	Yes
Phosphorous	N/A	N/A	N/A	N/A
Sulfate	1.526	8.3	2,407,000	Yes
Bentazon	0.6	4.7	1.1	No
Glyphosate	0.6	4.7	37.6	No
Picloram	0.6	4.7	0.75	No

The Code of Federal Regulations, 40 CFR 122.44 (d)(1)(iii), states: *"...a discharge causes, has a reasonable potential to cause, or contribute to an in-stream excursion above allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant.*" The Basin Plan requires, on page III-3.0: *"At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of maximum contaminant levels (MCLs) specified in…Title 22 of the California Code of Regulations, which are incorporated by reference into this plan…"* Municipal and domestic water supply is designated as a beneficial use of the Bear River, which is downstream of the Western Pacific Interceptor Drainage Canal. Pursuant to the Basin Plan Tributary Rule, the municipal and domestic water supply beneficial use designation of the Bear River is applied to the Western Pacific Interceptor Drainage Canal.

All mass-based Effluent Limitations are calculated using the following equation:

$$X \frac{mg}{l} \times 8.345 \times Flow(mgd) = Y \frac{lbs}{day} \qquad (*)$$

where

X = Concentration-based Effluent Limitation
Y = Mass-based Effluent Limitation

Chloroethane

DSMRs and the ROWD indicate that chloroethane was detected in 1 of 12 effluent samples. The detected concentration of chloroethane was estimated at 0.12 µg/l (reported as "J Flag"). The MDL and the RL were reported at 0.11 µg/l and 2 µg/l, respectively.

Chloroethane is included in the CTR. However, no CTR criteria for chloroethane have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to chloroethane to determine whether chloroethane causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. Using the methodology in the U.S. EPA's Technical Support Document (TSD) for Water Quality-Based Toxics Control, the projected Maximum Effluent Concentration (MEC) of chloroethane is calculated at 0.336 µg/l. The taste and odor threshold for chloroethane is 16 µg/l.

The projected MEC of chloroethane does not exceed the taste and odor threshold. It indicates that the discharge from the Olivehurst PUD WWTP does not have a reasonable potential to cause an exceedance of water quality criteria for chloroethane. Therefore, no Effluent Limitation for chloroethane is included in this Order.

Total Trihalomethanes and Chloroform

DSMRs and the ROWD indicate that chloroform was detected in each of the twelve effluent samples at a maximum concentration of 43 µg/l. Chloroform is included in the CTR. However, no CTR criteria for chloroform have yet been established. Therefore, the reasonable potential analysis for non-CTR constituents is applied to chloroform to determine whether chloroform causes or has a reasonable potential to cause an exceedance of a water quality criterion or objective. Using the TSD reasonable potential analysis, the projected MEC of chloroform is calculated at 119 µg/l.

The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic

assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and 2 liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 ug/L (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the DHS to set *de minimus* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S.EPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. Since no drinking water intakes are likely to exist where the ingestion of water is equivalent to the level used in development of the cancer risk assessment downstream of the discharge from the Olivehurst PUD WWTP; therefore, setting a chloroform effluent limitation based on a cancer risk analysis is not appropriate. Although application of the cancer risk criteria is inappropriate, protection of the municipal water supply is necessary and appropriate. The Primary MCL for total trihalomethanes, the sum of bromoform, bromodichloromethane, chloroform, and dibromochloromethane, is 80 µg/l.

The projected MEC of chloroform exceeds the Primary MCL. It indicates that the discharge from the WWTP does have a reasonable potential to cause an in-stream excursion above the water quality objective for municipal uses. Therefore, an Effluent Limitation for total trihalomethanes is included in this Order and is based on the Basin Plan objective for municipal use. If U.S. EPA or the State Board develops a water quality objective for chloroform and/or total trihalomethanes, this Order may be reopened and a new Effluent Limitation established.

Cis-1,2-dichloroethene

DSMRs and the ROWD indicate that cis-1,2-dichloroethene was detected in 10 of 12 effluent samples. The maximum detected effluent concentration of cis-1,2-dichloroethene was reported at 0.79 µg/l. U.S. EPA and the Department of Health Service established a Primary MCL of 70 µg/l and 6 µg/l for cis-1,2-dichloroethene, respectively.

Using the TSD reasonable potential analysis, the projected MEC of cis-1,2-dichloroethene is calculated at 2.7 µg/l. The projected MEC of cis-1,2-dichloroethene does not exceed the Primary MCL. Therefore, no Effluent Limitation for cis-1,2-dichloroethene is included in this Order.

Methyl T-Butyl Ether (MTBE)

DSMRs and the ROWD indicate that MTBE was detected in 9 of 12 effluent samples. The maximum detected effluent concentration of MTBE was reported at 0.71 µg/l. Department of Health Services established a Primary MCL and a Secondary MCL of 13 µg/l and 5 µg/l for MTBE, respectively.

Using the TSD reasonable potential analysis, the projected MEC of MTBE is calculated at 2.5 µg/l. The projected MEC of MTBE does not exceed any water quality criteria. Therefore, no Effluent Limitation for MTBE is included in this Order.

Xylenes

DSMRs and the ROWD indicate that xylenes was detected in 1 of 12 effluent samples. The maximum detected effluent concentration of xylenes was reported at 1.7 µg/l. U.S. EPA and the Department of Health Service established a Primary MCL of 10,000 µg/l and 1,750 µg/l for xylenes, respectively.

Using the TSD reasonable potential analysis, the projected MEC of xylenes is calculated at 4.8 µg/l. The projected MEC of xylenes does not exceed any water quality criteria. Therefore, no Effluent Limitation for xylenes is included in this Order.

Aluminum

Aluminum occurs naturally and makes up about 8% of the surface of the earth. When aluminum enters the environment, it can dissolve in lakes, streams, and rivers depending on the quality of the water. Studies have shown that infants and adults who received large doses of aluminum developed bone diseases, which suggests that aluminum may cause skeletal problems. Some sensitive people develop skin rashes from using aluminum chlorohydrate deodorants.

DSMRs and the ROWD indicate that aluminum was detected in 6 of 11 effluent samples. The maximum detected effluent concentration of aluminum was reported at 480 µg/l. U.S. EPA established Ambient Water Quality freshwater aquatic life continuous concentration and maximum concentration criteria of 87 µg/l as a four-day average and 750 µg/l as a one-hour average, respectively, for aluminum. Aluminum exists as aluminum silicate in suspended clay particles, which U.S. EPA acknowledges might be less toxic than other forms of aluminum. Correspondence with U.S.EPA indicates that the criterion is not intended to apply to aluminum silicate particles. Therefore, a monitoring method that excludes clay particles is likely to be more appropriate. The use of
acid-soluble analysis for compliance with the aluminum criterion appears to satisfy U.S. EPA.

Using the TSD reasonable potential analysis, the projected MEC of aluminum is calculated at 3,298 µg/l. The maximum detected concentration of aluminum exceeds the Ambient Criteria. Therefore, the discharge from the Olivehurst PUD WWTP has a reasonable potential to cause an exceedance of the Basin Plan narrative toxicity objective. This Order includes concentration-based Effluent Limitations for aluminum based on the Basin Plan narrative toxicity objective utilizing the EPA's recommended Ambient Criteria.

The U.S. EPA TSD recommends converting acute (one-hour average) and chronic (four-day average) aquatic life criteria to maximum daily and average monthly effluent limitations. Conversions are demonstrated in the following equations:

$$LTA_{ac} = WLA_{ac} \times \exp\left(0.5\sigma^2 - z\sigma\right)$$
$$LTA_{c} = WLA_{c} \times \exp\left(0.5\sigma_4{}^2 - z\sigma_4\right)$$

$$LTA = \min(LTA_C, LTA_{ac})$$

$$AMEL = LTA \times \exp(z\sigma_n - 0.5\sigma_n^2)$$

$$MDEL = LTA \times \exp(z\sigma - 0.5\sigma^2)$$

where

LTA_{ac} = Acute long-term average wasteload in chronic units = 120.8
LTA_c = Chronic long-term average wasteload = 25.9
WLA_{ac} = Acute wasteload allocation in chronic toxic units
LTA = Long-term average = 25.9
σ = Standard deviation = 0.131
AMEL = Average monthly effluent limitation
MDEL = Maximum daily effluent limitation

Using above equations, maximum daily and average monthly concentration-based Effluent Limitations for aluminum are calculated at 161 µg/l and 58 µg/l. In addition, this Order contains maximum daily and average monthly mass-based Effluent Limitations for aluminum. Mass-based Effluent Limitations are calculated using the equation (*).

Barium

DSMRs and the ROWD indicate that barium was detected in 8 of 11 effluent samples. The maximum detected effluent concentration of barium was reported at 46 µg/l. U.S. EPA and the Department of Health Service established a Primary MCL of 2,000 µg/l and 1,000 µg/l for barium, respectively.

Using the TSD reasonable potential analysis, the projected MEC of barium is calculated at 269 µg/l. The projected MEC of barium does not exceed any water quality criteria. Therefore, no Effluent Limitation for barium is included in this Order.

Fluoride

DSMRs and the ROWD indicate that fluoride was detected in 6 of 11 effluent samples. Detected effluent concentrations of fluoride ranged from 120 µg/l to 940 µg/l. The average detected effluent concentration of fluoride is 220 µg/l.

U.S. EPA and California DHS established a Primary MCL for fluoride of 4,000 µg/l and 2,000 µg/l, respectively. The Secondary MCL for fluoride is 2,000 µg/l. The Agricultural Water Quality Goal for fluoride is 1,000 µg/l. Since detected effluent concentrations of fluoride do not exceed any water quality criteria, it indicates that the discharge from the Olivehurst PUD WWTP does not present a reasonable potential to cause an in-stream excursion above the water quality objective for municipal uses or agricultural uses. Therefore, no Effluent Limitation for fluoride is included in this Order.

Iron

Iron is an abundant element in the earth's crust. It is believed to be the major component of the earth's core. Several studies have shown that high iron content in the body linked to cancer and heart disease. Iron can be poisonous and if high dose of iron is taken over a long period, it could result in liver and heart damage, diabetes, and skin changes.

DSMRs and the ROWD indicate that iron was detected in 7 of 11 effluent samples. The maximum detected effluent concentration of iron was reported at 220 µg/l. Using the TSD reasonable potential analysis, the projected MEC of iron is calculated at 1,170 µg/l. The current Secondary MCL for iron is 300 µg/l.

The projected MEC of iron exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for iron based on the Basin Plan chemical constituents objective at the Secondary MCL of 300 µg/l. In addition, this Order contains a mass-based Effluent Limitation for iron, calculated using the equation (*).

Manganese

DSMRs and the ROWD indicate that manganese was detected in 9 of 11 effluent samples. The maximum detected effluent concentration of manganese was reported at 360 µg/l. U.S. EPA and the Department of Health Service established a Secondary MCL of 50 µg/l for manganese. Using the TSD reasonable potential analysis, the projected MEC of manganese is calculated at 3,514 µg/l. The projected MEC of manganese exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for manganese based on the Basin Plan chemical constituents objective at the Secondary MCL of 50 µg/l. In addition, this Order contains a mass-based Effluent Limitation for manganese, calculated using the equation (*).

Tributyltin

DSMRs and the ROWD indicate that tributyltin was detected in 3 of 12 effluent samples. The maximum detected effluent concentration of tributyltin was reported at 0.114 µg/l. U.S. EPA established Ambient Water Quality freshwater aquatic life continuous concentration and maximum concentration criteria of 0.072 µg/l as a four-day average and 0.46 µg/l as an one-hour average, respectively, for tributyltin. Using the TSD reasonable potential analysis, the projected MEC of tributyltin is calculated at 1.2 µg/l. The maximum detected concentration of tributyltin exceeds the Ambient Criteria. Therefore, the discharge from the Olivehurst PUD WWTP does have a reasonable potential to cause an exceedance of the Basin Plan narrative toxicity objective. This Order includes concentration-based Effluent Limitations for tributyltin based on the Basin Plan narrative toxicity objective utilizing the EPA's recommended Ambient Criteria.

The U.S. EPA TSD recommends converting acute (one-hour average) and chronic (four-day average) aquatic life criteria to maximum daily and average monthly effluent limitations. Conversions are demonstrated in the following equations:

$$LTA_{ac} = WLA_{ac} \times \exp\left(0.5\sigma^2 - z\sigma\right)$$
$$LTA_c = WLA_c \times \exp\left(0.5\sigma_4{}^2 - z\sigma_4\right)$$
$$LTA = \min\left(LTA_C, LTA_{ac}\right)$$
$$AMEL = LTA \times \exp\left(z\sigma_n - 0.5\sigma_n{}^2\right)$$
$$MDEL = LTA \times \exp\left(z\sigma - 0.5\sigma^2\right)$$

where

LTA_{ac} = Acute long-term average wasteload in chronic units = 0.058
LTA_c = Chronic long-term average wasteload = 0.016
WLA_{ac} = Acute wasteload allocation in chronic toxic units
LTA = Long-term average = 0.016
σ = Standard deviation = 0.035
AMEL = Average monthly effluent limitation
MDEL = Maximum daily effluent limitation

Using above equations, maximum daily and average monthly concentration-based Effluent Limitations for tributyltin are calculated at 0.13 µg/l and 0.043 µg/l. In addition, this Order contains maximum daily and average monthly mass-based Effluent Limitations for tributyltin, calculated using the equation (*).

Methylene Blue Active Substances (MBAS)

DSMRs and the ROWD indicate that MBAS was detected in 3 of 12 effluent samples. The maximum detected effluent concentration of MBAS was reported at 150 µg/l. Using the TSD reasonable potential analysis, the projected MEC for MBAS is calculated at 795 µg/l.

The current Secondary MCL for MBAS is 500 µg/l. The projected MEC of MBAS exceeds the Secondary MCL. To protect the municipal and domestic water supply beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for MBAS based on the Basin Plan chemical constituents objective at the Secondary MCL of 500 µg/l. In addition, this Order contains a monthly average mass-based Effluent Limitation for MBAS, calculated using the equation (*).

Nitrate (as N)

Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification process to remove ammonia from the waste stream. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia or nitrate to the receiving stream. Nitrate is one of the important nutrients for algae. An excess nitrate may cause the rapid growth of algae. The algae population becomes an extreme and algae dies. Decomposition occurs using much oxygen and other aquatic organisms also die and decompose. This condition is known as eutrophication and the ecological balance has been destroyed. Recent toxicity studies have indicated that a possibility that nitrate is toxic to aquatic organisms.

DSMRs and the ROWD indicate that nitrate (as N) was detected in the effluent at a maximum concentration of 140 mg/l. Using the TSD reasonable potential analysis, the projected MEC of nitrate is calculated at 1,183 mg/l. U.S. EPA has developed a Primary MCL of 10,000 µg/l for nitrate (as N). An Effluent Limitation for nitrate is included in existing Waste Discharge Requirements, Order No. R5-2002-0001, in accordance with the Basin Plan chemical constituents objective. A time schedule for compliance with the nitrate Effluent Limitation was included in the Cease and Desist Order No. R5-2002-0002, with full compliance required by 1 January 2007.

The maximum detected effluent concentration of nitrate exceeds the monthly average Effluent Limitation contained in the existing permit. Therefore, nitrate has violated and presents a reasonable potential to cause or contribute to an exceedance of permit limitations. The Monthly Average concentration-based Effluent Limitation for nitrate as contained in the existing permit is continued in this Order.

Nitrite (as N)

DSMRs and the ROWD indicate that nitrite was detected in 1 of 12 effluent samples. The maximum detected effluent concentration of nitrite (as N) was reported at 460 µg/l. Using the TSD reasonable potential analysis, the projected MEC of nitrite is calculated at 1,288 µg/l.

U.S. EPA and California DHS developed a Primary MCL of 1,000 µg/l for nitrite (as N). The projected MEC of nitrite exceeds the Primary MCL. To protect the municipal and domestic beneficial use, this Order includes a monthly average concentration-based Effluent Limitation for nitrite based on the Basin Plan chemical constituent objective at the Primary MCL of 1,000 µg/l. In addition, this Order contains a monthly average mass-based Effluent Limitation for nitrite, calculated using the equation (*).

Sulfate

DSMRs and the ROWD indicate that sulfate was detected in each of the 12 effluent samples. The maximum detected effluent concentration of sulfate was reported at 290 mg/l. Using the TSD reasonable potential analysis, the projected MEC of sulfate is calculated at 2,407 mg/l. The current Primary and Secondary MCLs for sulfate are 500,000 µg/l and 250,000 µg/l, respectively.

The maximum detected effluent concentration of sulfate exceeds the Secondary MCL. To protect the municipal and domestic beneficial use, this Order includes a monthly average concentration-based Effluent Limitation of 250,000 µg/l for sulfate based on the Basin Plan chemical constituent objective at the Secondary MCL. In addition, this Order contains a monthly average mass-based Effluent Limitation for sulfate, calculated using the equation (*).

Bentazon

DSMRs and the ROWD indicate that bentazon was detected in 2 of 4 effluent samples. Detected effluent concentrations of bentazon were estimated at 0.19 µg/l and 0.24 µg/l (reported as "J Flag"). The MDL and the RL are reported at 0.17 µg/l and 2.0 µg/l, respectively. Using the TSD reasonable potential analysis, the projected MEC of bentazon is calculated at 1.1 µg/l.

California DHS developed a Primary MCL of 18 µg/l for bentazon. Since the projected MEC of bentazon does not exceed the Primary MCL, it indicates that the discharge from the Olivehurst PUD WWTP does not have a reasonable potential to cause an in-stream excursion above a water quality standard for bentazon. Therefore, no Effluent Limitation for bentazon is included in this Order.

Glyphosate

DSMRs and the ROWD indicate that glyphosate was detected in 2 of 4 effluent samples. The maximum detected effluent concentration of glyphosate was reported at 8 µg/l. Using the TSD reasonable potential analysis, the projected MEC of glyphosate is calculated at 37.6 µg/l.

U.S. EPA and California DHS developed a Primary MCL of 700 µg/l for glyphosate. Since the projected MEC of glyphosate does not exceed the Primary MCL, it indicates that the discharge from the Olivehurst PUD WWTP does not present a reasonable potential to cause an in-stream excursion above a water quality standard for glyphosate. Therefore, no Effluent Limitation for glyphosate is included in this Order.

Picloram

DSMRs and the ROWD indicate that picloram was detected in 1 of 4 effluent samples. The detected effluent concentration of picloram was estimated at 0.16 µg/l (reported as "J Flag"). The MDL and the RL were reported at 0.029 µg/l and 1.0 µg/l, respectively. Using the TSD reasonable potential analysis, the projected MEC of picloram is calculated at 0.75 µg/l.

U.S. EPA and California DHS developed a Primary MCL of 500 µg/l for picloram. Because the projected MEC of picloram does not exceed the Primary MCL, it indicates that the discharge from the

Olivehurst PUD WWTP does not present a reasonable potential to cause an in-stream excursion above a water quality standard for picloram. Therefore, no Effluent Limitation for picloram is included in this Order.

Total Coliform Organisms

Total coliform bacteria is a group of bacteria that includes fecal coliforms and other non-fecal bacteria. Escherichia coli (E.coli) is a specific kind of fecal coliform that is found in human and other mammal waste. Some of the health risks associated with fecal-contaminated water are gastroenteritis, ear infections, typhoid fever, dysentery, and hepatitis. The presence of coliform suggests contamination of the water supply that may include such harmful microorganisms giardia and cryptosporidium as well as others.

The existing permit includes total coliform organisms effluent limitations of 23 MPN/100 ml and 240 MPN/100 ml as the monthly median and daily maximum concentrations, respectively. These effluent limitations are continued in this Order. The California Department of Health Services (DHS) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 ml as a 7-day median. Title 22 is not directly applicable to surface waters; however, the Regional Board finds that it is appropriate to apply DHS's reclamation criteria because agricultural irrigation beneficial use is applied to the Western Pacific Interceptor Drainage Canal pursuant to the Tributary Rule. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS. Therefore, from **30 November 2007** forward, Effluent Limitations based on the tertiary treatment standards are included in this Order to protect the beneficial uses of nonrestricted contact recreation and irrigation in the Bear River, downstream from the Western Pacific Interceptor Drainage Canal.

BOD and TSS

Biochemical oxygen demand (BOD) is a measure of the amount of oxygen that bacteria will consume while decomposing the organic matter under aerobic condition. BOD measurements are used as a measure of the organic strength of waste in water.

Total suspended solids (TSS) are solids in water that can be trapped by a filter. Total suspended solid is a parameter use to measure water quality as a concentration of mineral and organic sediment. TSS can include a wide variety of material, such as silt, decaying plant and animal matter, industrial

wastes, and sewage. High concentrations of suspended solids can cause many problems for stream health and aquatic life.

High TSS can block light from reaching submerged vegetation. As the amount of light passing through the water is reduced, photosynthesis slows down. Reduced rates of photosynthesis cause less dissolved oxygen to be released into the water by plans. If light is completely blocked from bottom dwelling plants, the plants will stop producing oxygen and will die. As the plants are decomposed, bacteria will use up even more oxygen from the water. Low dissolved oxygen can lead to fish kills. High TSS can also cause an increase in surface water temperature, because the suspended particles absorb heat from sunlight. This can cause dissolved oxygen levels to fall even further and can harm aquatic life in many other ways.

40 Code of Federal Regulations (CFR), Section 133.102 contains regulations describing the minimum level of effluent quality for BOD and TSS based on the secondary treatment standards. These standards continued to be applied in the Order No. R5-2004-0094.

From **30 November 2007** forward, the Discharger shall be required to comply with effluent limitations established based on the tertiary treatment or equivalent treatment standards. Effluent limitations for BOD and TSS have been established at 10 mg/l, 15 mg/l, and 20 mg/l as a 30-day average, weekly average, and daily average based on the capability of the tertiary treatment system.

Settleable Solids

For inland surface waters, the Basin Plan states that "[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses." Order No. R5-2004-0094 contains average monthly and average daily effluent limitations for settleable solids.

Total Chlorine Residual

Chlorine is commonly used as a disinfection agent in the treatment of the wastewater. Proper disinfection ensures destruction of pathogens prior to discharge to the surface waters. The Discharger uses chlorine for disinfection of wastewater at the treatment plant. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. The use of chlorine as a disinfectant presents a reasonable potential that it could be discharged in toxic concentrations. Chlorine combines with natural organic matter to form potent, cancer-causing compounds known as trihalomethanes. For dechlorination, the Discharger uses sulfur dioxide, which combines with chlorine, to render it relatively unreactive and thus removes it from the waste stream. Inadequate dechlorination may result in the discharge of chlorine to the receiving stream and cause toxicity to aquatic life.

U.S. EPA has developed Ambient Water Quality criteria for the protection of freshwater aquatic life. The recommended maximum one-hour average and four-day average concentrations for chlorine are 0.02 mg/l and 0.01 mg/l, respectively. This Order includes a one-hour average Effluent Limitation of

0.02 mg/l and four-day average Effluent Limitation of 0.01 mg/l for chlorine based on the Basin Plan narrative toxicity objective utilizing Ambient Water Quality criteria.

Electrical Conductivity and Chloride

Electrical Conductivity (EC):

EC measures the ability of the water sample to carry an electrical current, a property which is proportional to the concentration of ions in solution. Domestic and industrial uses of water, result in an increase in the mineral content of the wastewater. The salinity of the wastewater is determined by measuring EC. When salts dissolve in water, ions are formed and the solution will conduct electricity. EC increases with salinity because of the increasing presence of ions.

The Agricultural Water Quality goal for EC is 700 μmhos/cm. The Basin Plan states, on Page III-3.00 Chemical Constituents, that "Waters shall not contain constituents in concentrations that adversely affect beneficial uses."

The ROWD indicates that EC has not been detected above the Agricultural Water Quality Goal in any effluent samples. The maximum level of electrical conductivity in the effluent was reported at 530 μmhos/cm. The wastewater discharge does not present a reasonable potential to cause adversely effect to the Agricultural irrigation beneficial use of the receiving stream. Therefore, no Effluent Limitation for EC is included in this Order.

Chloride:

The ROWD indicates that chloride was detected in the effluent at concentrations ranged from 41,000 μg/l to 64,000 μg/l. The average detected effluent concentration of chloride is 51,000 μg/l. The current Secondary MCL for chloride is 250,000 μg/l. The Agricultural Water Quality Goal for chloride is 106,000 μg/l.

Sodium chloride consists of sodium ions (Na^+) and chloride ions (Cl^-) held together in a crystal. In water, sodium chloride breaks apart into an aqueous solution of sodium and chloride ions. This solution will conduct an electric current. Because dissolved ions in water increase conductivity, the measures of chloride ions and EC are related. Effectively control the level of EC will result in less amount of chloride in the effluent. Analytical data provided by the Discharger indicate that each of the 11 effluent samples for chloride was detected below Agricultural Water Quality Goals. In addition, EC has not been detected above the Agricultural Water Quality goal in any effluent samples. Therefore, it indicates that the wastewater discharge does not present a reasonable potential to cause an adversely effect to the Agricultural irrigation beneficial use of the receiving stream for chloride. No Effluent Limitation for chloride is included in this Order.

Flow

The current design average dry weather flow capacity of the wastewater treatment plan is 1.8 mgd. Therefore, the influent flow limit is established at 1.8 mgd. Expansions of the wastewater treatment system allowing an increase in the average dry weather flow rate to 3.0 mgd (Phase 1a) and 5.1 mgd (Phase 2) will be allowed upon receipt of certification of expansion of the treatment system. The treatment system capacity, limited in this Order, will not be allowed to be increased until the Discharger has provided a stamped and signed certification, by a registered Civil Engineer with experience in the design and operation of wastewater treatment systems, that the expanded system is capable of achieving full compliance with this Order.

pH

For all surface water bodies in the Sacramento River and San Joaquin River basins, the Basin Plan includes a water quality objective for pH in surface waters, which states " *The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh water with designated COLD and WARM beneficial uses*." At times, the Western Pacific Interceptor Drainage Canal provides insignificant dilution for the effluent discharged from the wastewater treatment plant. The effluent limitation for pH included in this Order will be based on the water quality objective described in the Basin Plan.

Toxicity

The Basin Plan states that "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances." The Basin Plan requires that "as a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay." Order No. R5-2004-0094 requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective. The Basin Plan also states: "…effluent limits based upon acute biotoxicity tests of effluents will be prescribed…". Effluent limitations for acute toxicity are included in the Order.

RECEIVING WATER LIMITATIONS AND MONITORING

Dissolved Oxygen

Warm and cold freshwater aquatic habitat is designated as a beneficial use of the Bear River, downstream from the Western Pacific Interceptor Drainage Canal. Pursuant to the Basin Plan Tributary Rule, warm and cold freshwater aquatic habitat beneficial use is applied to the Western Pacific Interceptor Drainage Canal. In fact, the California Department of Fish and Game (DFG) has recorded the presence of adult salmonids and juvenile non-natal rearing in the Western Pacific Interceptor Drainage Canal and anadromous fish species in Reeds Creek, a tributary to the Western

Pacific Interceptor Drainage Canal. For water bodies designated as having cold freshwater aquatic habitat as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/l of dissolved oxygen. The current WDRs, Order No. R5-2002-0001, includes a

limitation of 7.0 mg/l for dissolved oxygen. The receiving water limitation for dissolved oxygen as contained in the existing permit is continued in this Order.

For surface water bodies outside of the Delta, the Basin Plan requires that "…the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation." This objective is included as a receiving water limitation in the Order.

pH

For all surface water bodies in the Sacramento River and San Joaquin River basins, the Basin Plan includes a water quality objective for pH in surface waters, which states: " The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh water with designated COLD and WARM beneficial uses." Both warm and cold freshwater aquatic habitats are designated as beneficial uses of the Bear River, which is downstream from the Western Pacific Interceptor Drainage Canal. Therefore, warm and cold freshwater aquatic habitat beneficial use is applied to the Western Pacific Interceptor Drainage Canal pursuant to the Basin Plan Tributary Rule. This Order includes receiving water limitations for pH based on the water quality objective described in the Basin Plan.

Temperature

The Basin Plan includes the following objective: "At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature." Warm and cold freshwater aquatic habitat has been designated as beneficial use of the Bear River, which is downstream from the Western Pacific Interceptor Drainage Canal. Therefore, warm and cold freshwater aquatic habitat beneficial use is also applied for the Western Pacific Interceptor Drainage Canal pursuant to the Basin Plan Tributary Rule. This Order includes receiving water limitations for temperature based on the water quality objective described in the Basin Plan.

Turbidity

The Basin Plan states that: "Waters shall be free of changes in turbidity that cause nuisance or adversely effect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:

Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.

Where natural turbidity is between 5 and 10 NTUs, increases shall not exceed 20 percent.

Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU.

Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent."

This Order includes receiving water limitations for turbidity based on the water quality objective described in the Basin Plan.

Toxicity

The Basin Plan states that "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances." The Basin Plan requires that "as a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay." Order No. R5-2004-0094 requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective. The Basin Plan also states: "…effluent limits based upon acute biotoxicity tests of effluents will be prescribed…". Effluent limitations for acute toxicity are included in the Order.

GENERAL EFFLUENT LIMITATION INFORMATION

Selected 40 CFR §122.2 definitions:

'*Average monthly discharge limitation* means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

Daily discharge means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonable represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum daily discharge limitation means the highest allowable "daily discharge".'

The SIP contains similar definitions. These definitions were used in the development of Order No. R5-2003-0085. Alternate limitation period terms were used in the permit for the sake of clarity. Alternates are shown in the following table:

Term Used in Permit	SIP/40 CFR 122.2 Term
Average monthly	Average monthly discharge limitation. 30-day averages may have been converted to monthly averages to conform with 40 CFR §122.45 (see below)
Average daily	Maximum daily discharge limitation. Since the daily discharge for limitations expressed in concentrations is defined as the average measurement of the pollutant over the day, the term 'Average Daily' was used in the Order.

40 CFR §122.45 states that:

(1) "In the case of POTWs, permit effluent limitations…shall be calculated based on design flow."

(2) "For continuous discharges all permit effluent limitations…shall unless impracticable be stated as…[a]verage weekly and average monthly discharge limitations for POTWs."

(3) "All pollutants limited in permits shall have limitations…expressed in terms of mass except…[f]or pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass…Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permitee to comply with both limitations."

U.S. EPA recommends a maximum daily limitation rather than an average weekly limitation for water quality based permitting.

No recommended or approved methods have been provided for converting human health and four-day and one-hour toxicity criteria, standards, and objectives to weekly average effluent limitations; therefore, the conversion to weekly average limitations is impracticable.